



HUNGARIAN MUSEUM
OF TRANSPORT

DESIGN CONTEST 2018-2019
[NEW MUSEUM OF TRANSPORT]



[DOCUMENTATION OF THE CONTEST]

The design tender, the documentation of the tender and the issuer's answers to the Applicants' questions together constitute the complete documentation of the tender!

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[1 Introduction, Background]

The Hungarian Museum of Science, Technology and Transport is one of the earliest transport museums established in Europe. Since 1899, for nearly 120 years, it has been collecting, preserving, researching and exhibiting the results of Hungarian technical development and the achievements of the Hungarian transport sector, and has become a defining institution in an international context. Reaching back to and in the spirit of the aims of the original founders, the Museum defines itself as an internationally renowned scientific, educational, and recreational museum focusing on Hungarian transport.

After moving out of its home at Városliget (City Park), the Hungarian Museum of Transport will be rebuilt on site of a former railway maintenance depot, a prominent heritage territory of Hungarian transportation history, located in an industrial area of Budapest.

The Diesel Hall and the connected areas of the former Northern Maintenance Depot are able to provide the Museum of Transport with a historically authentic site –which also have rail connections favorable for the large-size vehicles and artefact transportation – that can meet both the needs of visitors and researchers and ensure the preservation and storage of the historical heritage of Hungarian transport for the coming decades.

The former site of the museum in Városliget offered only limited opportunities for the exhibition and did not have the possibility for setting up storages or restoration workshops either. The new location provides a solution to all of the above, while the range of functions can be expanded with conference and event venue features, and educational infrastructure. The objective is to increase the annual number of visitors to at least 350,000 by doubling the previously achieved number. The new site fits into a larger scale urban development intervention of a cultural character.



Dávid Vitézy
Director of the Hungarian Museum of Science,
Technology and Transport

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Our stated goal is to replace the former object-oriented exhibition with an exhibition based on human stories and experience. Transport is one of the decisive elements of our lives and lifestyles. Its equipment, conditions and infrastructure are factors that determine society as a whole. By presenting the past of the transport industry, our aim is to provide an inspirational background for future-oriented solutions and innovation. Now an experience-based, visitor-friendly museum is planned that, with the focus placed on the visitor, can present the Hungarian transport history as a multigenerational community space, in an internationally interpretable context with an interdisciplinary approach. The associated artefact and archives storages, and restoration workshops can also be renewed, thus ensuring the long-term, effective preservation of transport relics for the future.

We are committed to creating a new museum that is not only optimal in its function, but also able to become a characteristic architectural complex in Budapest. The design competition would like to address the architects who are willing to undertake the design of a new central facility for the Hungarian Museum of Transport on a highly traditional site, with the renewal and contemporary reinterpretation of the architectural environment of the 1960s.



Dávid Vitézy

*Director of the Hungarian Museum of Science,
Technology and Transport*



1.1 THE MISSION AND GOALS OF THE PROJECT

In 2018, an international architectural competition will be announced to establish the Museum's new exhibition and collection venues in accordance with the European and Hungarian regulations.

The aim of the competition is to select a team, who

- are prepared to fulfil the complex design requirements of a largescale project;
- are sensitive to an inspiring, visitor-focused presentation of technical heritage and innovation;
- view the location and the built structures as a resource for creative action;
- can mobilise a complex range of expertise;
- have experience in architectural design and exhibition design duties;
- have the ambition to create a world class architectural complex;
- are motivated to participate in establishing a new, leading, innovative institution.

The competition welcomes ideas for interventions and programming in areas outside the immediate boundaries of the brief.

The Competition Jury will consist of internationally renowned architects, museum leaders and professionals, the delegates of the Hungarian Government, who finances the project, the City of Budapest and other professional representatives. The Museum intends to sign a contract with the winning entry's authors for the full planning process, including concept, permission and construction plans.



1.2 HISTORY OF THE INVESTMENT, GOVERNMENT DECISIONS

The Museum of Transport, founded in 1899, was one of the most popular museums in Hungary for decades, attracting 150,000 to 200,000 visitors per year. The institution has played a decisive role in the presentation and education of the technical cultural heritage; but, in addition to the exhibition, the building in Városliget was not suitable for accommodating the ever-expanding collection and archives, the necessary restoration workshops and the up-to-date museum infrastructure.

Following the examination and evaluation of possible development concepts, the Government – in Resolution 2011/2017 (XII.22.) – supported the Museum of Transport in choosing its new site in Budapest's district X., in the former industrial district of Kőbánya, in the area of the former MÁV Northern Maintenance Depot of the Hungarian State Railways.

Several urban rehabilitation projects are underway in the vicinity of the new location, among them the most important are the construction of the workshop building for the Hungarian State Opera and the rehabilitation of Népliget (People's Park), Budapest's largest, but less visited urban park. The Museum of Transport may become one of the focal points of this cultural-recreational area to be realized in the near future.

1.3 THE VISION OF THE NEW MUSEUM AND THE GOALS TO BE ACHIEVED

The Museum of Transport has been collecting objects, artefacts and written relics of Hungarian transportation for about 120 years, including omnibuses, buses, cars, trams and large railway vehicles. In 2009, with the integration of several museums of technology, the institutional system's collections were further expanded under the name of The Hungarian Museum of Science, Technology and Transport, but the Museum of Transport remained the major exhibition site. Despite the demolition of its main transport-themed exhibition site, the Museum of Transport is still the most important and popular institution in the country through its member institutions and exhibitions in Budapest and the countryside.

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Budapest also has a significant history of transport on an international level. At the end of the 1880s, the first downtown tram network in Europe was constructed here, just a few years after Siemens' first tram. Also, the first underground railway of the continent was built in Budapest – ahead of Paris, Berlin, Vienna or the big American cities. In Hungary, the big cities with tram lines were also the regional centres of the country, which demonstrates the powerful influence of transport on society, citizenship and urban development. Likewise, the railway not only contributed to the growth of villages, cities, or entire regions but also brought people and different social classes closer to one another. In 1915, the capital's bus transport started partly with electric buses; later motorization fundamentally changed the image of the capital and the countryside, and then people's habits and their use of space.

When it comes to the renewal of the museum, it should not be overlooked that in the first third of the 21st century the development of transport is likely to undergo a decisive transformation again, perhaps coming with the most influential social and economic changes of the last hundred years. Electrification, digitization, shared systems, and self-driven solutions have such a great impact on the economy, industry, society, cities and individual lifestyles that determine the institution's social mission, tasks, professional programme, research and exhibition activities.

The Museum of Transport will be reborn on a new site and within the framework of a comprehensive renewal of its content. One of Europe's oldest transport collections, originally opened in 1899, will be located on an authentic industrial heritage site that has been used for the repair and maintenance of railway vehicles since 1867. In the approximately seven-hectare area, the museum's new exhibitions, open-air programs, the library and archives, restoration workshops, and storages open to visitors will be placed in a worthy way. The entire museum complex, to be built only a few tram stops away from the museum's old building in Városliget, which was demolished in 2016, will be reborn as a community space, the No.1 family-friendly museum in Hungary and a modern knowledge centre at the same time, placed in the historical environment of the Hungarian railway maintenance industry.

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The new museum's goal is to create a professional platform and community space that contributes to the discussion of the past and current issues of transport, to related innovations and to sustainability with its permanent and temporary exhibitions and one of Europe's largest technical and transport science libraries and documentation centre. In addition to the above, a state-of the art restoration competence centre, storages open to visitors and community spaces will also be created. The new home of the Museum of Transport, located in a historically authentic site with rail connections – favourable for the large-size vehicles and artefact transportation, even for nostalgic rail trips – will be a decisive cultural tourism development. All this will result in the development of the most family-friendly and experience-based knowledge centre in Hungary, also significant by international standards.

[2 MAIN DETAILS OF THE COMPETITION]

2.1 CONTRACTING AUTHORITY

Hungarian Museum of Science, Technology and Transport

1072 Budapest, Rákóczi út 42. VIII. emelet

Managing authority and public procurement advisor

2.2 MANAGEMENT, PUBLIC PROCUREMENT ADVISOR:

XELLUM Tanácsadó és Szolgáltató Kft.

1051 Budapest, Október 6. utca 14. V. emelet

Accredited public procurement advisor assisting the management of the design contest:

Szterényi Law Firm

1011 Budapest, Fő u. 14.

Dr Sándor Szterényi

registration number: 00159

2.3 CONTACT

Pursuant to Decree No. 424/2017 of the Hungarian Government on the detailed rules of electronic public procurement procedures, communication between the Applicants and the Contracting Authority will take place through the website of the design contest on an anonymous basis and in keeping with the rules of confidentiality.

The website of the design contest is available at: www.newtransportmuseum.hu

2.4 SUBJECT

“New Museum of Transport Design Contest”, an architectural design contest in a restricted (two-stage, one-round) procedure with a contract value above the Community threshold.

On the basis of Resolution No. 2011/2017 of the Hungarian Government, the Hungarian Museum of Transport, which holds one of Europe’s oldest transport collections, has the opportunity to relocate to a building complex that meets the requirements of the 21st century. According to Resolution No. 2011/2017 of the Hungarian Government, the proposed location of the new complex of the Hungarian Museum of Transport will be built in Budapest’s 10th District, in an area known as Kőbánya, on the territory of a defunct railway maintenance depot. The project is expected to be implemented in the form of a railway brownfield project. The main functional elements of the project include an exhibition space and the related functions, a storage and restoration centre, partially open for visitors, and a knowledge centre. The focal point of the design contest is the high-quality adaptive reuse of the highly valuable and partially protected buildings located on the territory of the maintenance depot. A cultural centre known as Törekvés Művelődési Ház is not part of the design contest per se, but functions associated with the museum and an adjacent railway station can be conceptually placed in its ground floor spaces. The design contest also includes landscaping designs for open-air areas, such as outdoor exhibition venues, as well as concept-level architectural and landscaping designs for the passenger areas, passageways and service functions of the railway station that will be refurbished simultaneously with the maintenance depot.

The Museum is committed to making its new location a prominent cultural hotspot for visitors from Hungary and Europe alike, based both on the strength of its collections and the unique architectural design of its buildings.

2.5 AIM OF THE COMPETITION

The objective of the design contest is to compare and rank the design proposals submitted with respect to the design programme published in the design contest brief (this design contest notice and Q&A documents jointly). The final aim of the contest is the selection of a designer, or a design team, that is best suited to implement the program so that designs for the relevant area and museum functions are prepared innovatively and of a superior urban development and architectural quality, taking full account of present and future functional requirements.

The Contracting Authority wishes to conclude a design contract concerning the new Museum of Transport development project with the designers that submitted the design selected as a result of this design contest, after the completion of a negotiated procedure without prior publication of a contract notice which will be launched with the invitation of the Applicant that is ranked first in the jury's final report. Following the pre-qualification phase, the Contracting Authority will deliver a draft version of the design contract, including at least the key contract conditions, to the Applicants who are qualified as eligible and invited to participate in the design phase. As a result of the design contest, and in view of Section 28 of Decree No. 310/2015 of the Hungarian Government, the Contracting Authority will complete a negotiated procedure without the publication of a contract notice to conclude a design contract, where one or more Applicants will be invited to participate in the procedure on the basis of the decision of the jury as stated in the final report.

2.6 FORM AND NATURE

Procedural form of the design contest: restricted, single-round design contest.

Nature of the design contest: open in the pre-qualification phase and confidential in the design phase.

The maximum number of Applicants invited in this design contest is 15 ("participation limit"), with 11 of the Applicants invited directly. If any Applicant that is invited directly submits an invalid request to participate, or does not submit a request to participate, the Contracting Authority will invite other eligible Applicants in keeping with the participation limit on the basis of the ranking achieved in the pre-qualification phase.

2.7 DIRECT INVITEES

- 3H Építésziroda Kft. (Budapest)
- Amanda Levete Architects Ltd. (London)
- Atelier Brückner GmbH (Stuttgart)
- Bjarke Ingels Group (Copenhagen)
- Caruso St John Architects (Zurich, London)
- CÉH Zrt. + Foster & Partners (Budapest, London)
- David Chipperfield Architects (Berlin)
- Diller Scofidio + Renfro (New York)
- Építész Stúdió Kft. (Budapest)
- KÖZTI Zrt. (Budapest)
- Lacaton & Vassal Architects (Paris)

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2.8 TIMING AND MILESTONES

2.8.1 Pre-qualification phase

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| Deadline for questions regarding the pre-qualification phase: | 21 August 2018, 4:00 PM |
| Deadline for answering questions regarding the pre-qualification phase: | 27 August 2018, 4:00 PM |
| Deadline for submission of requests to participate: | 10 September 2018, 4:00 PM |
| Announcement of the results of the pre-qualification phase: | 21 September 2018 |

2.8.2 Design phase

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| Start of design period, invitation of Applicants: | 24 September 2018 |
| Possible site inspection appointments: | 8 October 2018 |
| | 11 October 2018 |
| Deadline for questions: | 9 November 2018 |
| Deadline for answering questions: | 30 November 2018 |
| Deadline for submission of designs: | 21 January 2019, 4:00 PM |
| Announcement of results: | 28 February 2019 |

The design contest schedule and other deadlines are available on the website of the design contest. Please note that times are specified by the Contracting Authority according to CET.

2.9 CONDITIONS OF PARTICIPATION/DESIGN SUBMISSION

I. A natural person, legal entity or entity that has legal capacity under the laws of its home country may participate in the pre-qualification phase (Applicant) if s/he or it:

- is not subject to any of the exclusion and conflict of interest criteria specified in Section 17(3) and Sections 18(3) through (5) of the Government Decree ^[1];
- declares that s/he or it has not been ruled in a final and binding court judgment adopted in the last three years to have committed a violation of any regulation in her/his/its professional capacity;
- by submitting her/his/its application to participate, has accepted the terms of the contest to be binding;
- declares that he/she has not committed a violation of law in the course of his/her professional activity during the past three years.

II. In the design phase:

A natural person, legal entity or entity that has legal capacity under the laws of its home country may participate in the pre-qualification phase (Applicant):

- is not subject to any of the exclusion and conflict of interest criteria specified in Section 17(3) and Sections 18(3) through (5) of the Government Decree ^[2];
- declares that s/he or it has not been ruled in a final and binding court judgment adopted in the last three years to have committed a violation of any regulation in her/his/its professional capacity;

- meets the professional requirements specified in the pre-qualification phase, the Contracting Authority determines that s/he or it has the required professional capacity and is invited to participate in the design phase, in addition to the directly invited Applicants, on the basis of the ranking determined in the pre-qualification phase;
- agrees to carry out the designs tasks identified in the design contest brief;
- agrees to be bound by the terms of the design contest brief by submitting a design proposal;
- preserves the confidentiality of the design contest;
- accepts that s/he or it may only participate in the design contest with one design proposal. (Subject to compliance with the applicable ethical norms, subcontractors, experts and co-workers of the authors may participate in the preparation of more than one design proposal.);
- authorises the Contracting Authority to use all or part of his/her/its design proposal if a prize is awarded for the design proposal or if it is purchased.

An Applicant that submits a valid request to participate and is invited to participate in the design phase will not be required to make new declarations if the declarations made in the pre-qualification phase remain valid. In that case the Applicant will have to declare that it continues to meet the requirements in the design phase.

The Contracting Authority notes that on the basis of Hungarian legal regulations in force (Government Decree No. 266/2103), if the Applicant that is declared the winner in the a negotiated procedure without prior publication of a notice that will follow design contest does not have a valid architectural designer's license in Hungary, then, as a prerequisite for signing the contract, its license will have to be approved in a procedure (statement or application for license) that is necessary for pursuing the relevant activity and that is completed by the Hungarian Chamber of Engineers or the Hungarian Chamber of Architects, or its authorization for designer activities will have to be ensured by involving a partner having a designer license in Hungary.

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2.10 MEMBERS AND TASKS OF THE JURY

2.10.1 Members

| | | |
|--------------------------|-------------|---|
| Dávid Vitézy | Chairman | <i>Director of the Hungarian Museum of Science, Technology and Transport</i> |
| Dr Ferenc Makovényi, PhD | Co-Chairman | <i>architect, a delegate of the Hungarian Chamber of Architects</i> |
| Dr László Baán | member | <i>Director of the Museum of Fine Arts and the Hungarian National Gallery</i> |
| Prof. Enric Batlle, PhD | member | <i>architect, landscape architect, founder of Batlle I Roig</i> |
| Nóra Demeter, DLA | member | <i>architect, a delegate of the Hungarian Chamber of Architects, founder of Demeter Design Studio</i> |
| Zsolt Füleky | member | <i>architect, Deputy State Secretary of Architecture, delegated by the Prime Minister's Office</i> |
| Dr Balázs Fürjes | member | <i>State Secretary for Budapest and its Agglomeration, government commissioner</i> |
| Prof. Pedro Gadanho | member | <i>architect, curator, author, Director of the MAAT in Lisbon</i> |
| Dr István György | member | <i>government commissioner of the Government Office for Budapest</i> |
| Judit Z. Halmágyi, DLA | member | <i>architect, founder and managing partner of ZHJ Architects</i> |

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|----------------------------------|------------------|---|
| Pieter Jonckers | member | <i>Director of Trainworld Brussels</i> |
| Dr Erzsébet Szentpéteri Kóciánné | member | <i>historian, retired Director of the Hungarian Museum of Science, Technology and Transport</i> |
| Miklós Mártonffy | member | <i>architect, Head of the Urban Planning Department of the Municipality of Budapest</i> |
| Dr Sándor Pap | member | <i>Deputy Mayor of the Municipality of District 10 Kőbánya</i> |
| Marcela Steinbachová | member | <i>architect, Architect of the Year 2016 – Czech Republic</i> |
| Tamás Wachsler | member | <i>architect, leader of the Steindl Imre Program</i> |
| Nóra Winkler | member | <i>art journalist, television presenter</i> |
| Csaba Horváth | alternate member | <i>architect, Director of Capital Projects and Operations Hungarian Museum of Science, Technology and Transport</i> |
| Samu Szemerey | alternate member | <i>architect, founding member of the Contemporary Architecture Center (Kortárs Építészeti Központ)</i> |

The proceedings of the jury are not public. The jury will make its decisions with a simple majority of the votes, and its proceedings will be recorded in minutes. The jury's decision is final and may not be appealed, and will be binding on the Contracting Authority.

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The professional capacity of the Applicants will be reviewed in the pre-qualification phase in line with the criteria set out in the design contest brief. The review will be carried out by the members of a board of experts engaged by the Contracting Authority. The decision about the result of the review of professional capacity will be made by the Contracting Authority. The result of the review of professional capacity will be announced.

The jury will produce a final report about its summary of the design contest and deliver it to the Contracting Authority, which, on the basis of the report, will then publish its announcement about the result of the design contest or that it was unsuccessful.

The jury will be aided by a Board of Experts.

2.10.2 Members of the Board of Experts

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| Dr József Almássy | <i>load-bearing structures</i> |
| Dr habil. Gábor Becker DLA PhD | <i>building structures</i> |
| Melinda Benkő | <i>urban planning</i> |
| Annamária Bittó | <i>architecture</i> |
| Bálint Dományi | <i>urban planning, transportation</i> |
| Dr Csaba J. Fekete | <i>historic building protection</i> |
| Attila Győr | <i>historic building protection</i> |
| Csaba Horváth | <i>architecture</i> |
| Bálint Iványi | <i>urban planning</i> |
| Balázs Jelinek | <i>operations</i> |
| Bálint Kádár | <i>urban planning</i> |

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| László Kőcze | <i>libraries and archives</i> |
| Piroska Koczka | <i>architecture</i> |
| Szilárd Markója | <i>museology</i> |
| Miklós Merczi | <i>museology, artwork protection</i> |
| Ágnes Mozsár | <i>urban planning</i> |
| Tamás Niczki DLA | <i>sustainability</i> |
| Veronika Pápai | <i>landscape planning</i> |
| András Polgár | <i>artwork storage</i> |
| Zoltán Rostás | <i>project design and implementation</i> |
| Sára Schilling | <i>artwork protection</i> |
| Dr Margit Kócsi Sersliné | <i>urban planning</i> |
| Béla Simon | <i>project design and implementation</i> |
| Tamás Szakmár | <i>content development, warehousing and logistics</i> |
| Samu Szemerey | <i>architecture</i> |
| Anna Szilágyi | <i>urban planning and tourism</i> |
| Tibor Szilágyi | <i>transportation</i> |
| Zorán Vukoszávlyev PhD | <i>historic building protection</i> |
| Dr Gábor Zsigmond PhD | <i>museology</i> |
| Krisztina Baukovácz | <i>design contests</i> |
| János Sedlmayr | <i>design contests</i> |
| Dr Katalin Sirály | <i>law and public procurement</i> |

2.11 PRIZES AND HONORARIA

Honorarium: EUR 30 000 /Applicant

The honorarium will be paid to a maximum 15 of Applicants that are shortlisted from those that apply for participation in the pre-qualification phase. An Applicant will only be eligible for the honorarium if it submits its design proposal in accordance with the design contest brief.

The total budget available for awards (honoraria and prizes): EUR 680 000.

The first prize according to preliminary plans will not be more than EUR 80 000, whereas the amount paid for a purchased design will not be less than EUR 20 000.

The jury will evaluate the design proposals on the basis of the criteria set out in Section 3.2.8 below. In the design phase, only the best three design proposals will be identified, and the rest of the design proposals will not be ranked. The jury may award prizes and purchase designs in a shared arrangement.

The jury will award the full amount budgeted for the awards, except if the design contest is declared unsuccessful. The jury may also reduce the amount available for awards if in its judgment the designs are not fully fit for the purposes of the design contest.

The honorarium will be paid in return for a properly issued statutory invoice or other accounting document, after the results are announced and simultaneously with the payment of the first, second and third prizes, within the statutory deadline.

The above amounts are net of tax, and therefore the relevant invoice (or other accounting document) will have to state the net amount and value added tax at the rate that applies to the relevant Applicant under the Hungarian VAT legislation that is in force at the time when the invoice is issued.

2.12 RULES AND REGULATIONS

The design contest will be completed in accordance with the following rules and regulations, in the following order of priority:

- the relevant Hungarian regulations – Act CXLIII of 2015 on Public Procurement, Government Decree 310/2015 on the rules of design contest procedures and Government Decree 424/2017 on the detailed rules on electronic public procurement procedures,
- this design contest brief.

According to the regulations in force, the Contracting Authority may make use of the prize-winning entries in full or in part for promotion, reproduction and exhibition purposes. The Contracting Authority reserves the right to reproduce the prize-winning design proposals for promotion or exhibition purposes without additional remuneration for the authors but with stating their name, subject to compliance with copyright rules.

2.13 DISQUALIFICATION

The jury may disqualify an Applicant/Applicant from the design contest if:

Pre-qualification

- it submits its request for participation after the relevant time limit;
- it submits a design proposal in the pre-qualification phase;
- it does not meet the participation criteria specified in Section 2.9;
- it states false information; or
- the Applicant is subject to any of the disqualification criteria under Sections 17(3) or 18 of the Government Decree.

Design phase:

- its design proposal is received after the time limit for submission,
- its design proposal violates the requirement of anonymity,
- its design proposal does not meet substantial requirements,
- it states false information, or
- the authors of its design proposal are subject to any of the disqualification criteria under Sections 17(3) or 18 of the Government Decree.

Please note that the Contracting Authority may decide to query the Applicants during the design phase with regard to their capacities. Applicants and Applicants, as applicable, will not have the opportunity to remedy deficiencies in their submissions either in the prequalification or the design phase.

A design proposal that does not meet any formal requirement may be excluded from the design contest by the jury if such non-compliance renders the evaluation of the design proposal impossible.

The jury may review the truthfulness of the statements submitted in the design contest procedure.

Applicants that are excluded from the procedure will not be entitled to a honorarium.

2.14 AVAILABILITY OF THE BRIEF

After registration for the purposes of the design contest, the full design contest brief will be available for free download on the website of the design contest (www.newtransportmuseum.hu).

The downloaded documents may only be used for preparing a design proposal in the design contest, whether an Applicant participates in the design contest as an invitee or otherwise.

2.15 LANGUAGE OF THE DESIGN CONTEST

The official language of the design contest is:

- in the pre-qualification phase: Hungarian and English, including the design contest brief and any Q&A documents. Requests to participate should be submitted in Hungarian and English. The Contracting Authority expects questions and will respond to them in Hungarian and English.
- in the design phase: questions should be submitted, and the Contracting Authority will respond, in English. The design sheets of the design proposals and the technical specification must be prepared in English. The Contracting Authority does not allow the use of any other language.

[3 UNIQUE RULES FOR EACH PHASE OF THE DESIGN CONTEST]

3.1 PRE-QUALIFICATION PHASE

In the first, pre-qualification phase of the design contest, the Contracting Authority will make a decision on whether an Applicant has the professional capacity to perform the contract, and it will select the Applicants, up to the participation limit, that will be invited to submit a design proposal. In the first phase of the procedure, the Contracting Authority may not invite, and Applicants may not submit, design proposals.

On the basis of the legal regulations in force, the Contracting Authority will also invite Applicants to this design contest directly. In addition to the directly invited Applicants, all interested parties can submit a request to participate. The Applicants that are invited directly will have to verify their professional capacity in the same way as the other Applicants.

In addition to Applicants that are directly invited and meet the requirements, i.e. submitted a valid request to participate in the pre-qualification phase, Applicants that meet the professional requirements, submit a valid request to participate and are ranked within the participation limit will be invited to the design phase.

3.1.1 Professional and content requirements

Any natural person, legal entity or entity that has legal capacity under the laws of its home country must meet the professional requirements of the design contest if it wishes to participate in the design contest.

An Applicant/any consortium partners it may have will have to make a declaration on references. At least one of the consortium members will have to meet the reference requirements. Personal references of a member or employee of the Applicant or its consortium partner can be also accepted. The Applicant will be liable for the truthfulness of the relevant information.

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Any reference with regard to professional requirements may be met through a single reference (a contractually completed design). A reference may meet more professional requirements. In this case the reference may be submitted to all requirements.

The Contracting Authority may examine the contents and authenticity of the materials that confirm an Applicant's compliance with professional requirements, and if the requirements are not met, the Applicant will be disqualified by the Contracting Authority.

3.1.1.1 Minimum capacity requirements – references

An Applicant must have **at least one reference that meets any of the following conditions:**

1. main architect or design architect service that was performed in the past 20 years in accordance with the terms of the relevant contract, concerning the design of a building with **a total gross floor area of at least 8,000 sqm and having a cultural, exhibition or museum function** that has been built or is under construction in accordance with the design; or
2. main architect or design architect service that was performed in the past 20 years in accordance with the terms of the relevant contract, concerning the redesign or extension of an existing building with **a gross built-up ground area of at least 12,000 sqm and having a public/ community function** (apart from buildings serving commercial functions) that has been built or is under construction in accordance with the design; or
3. main architect or design architect service that was performed in accordance with the terms of the relevant contract, concerning the design of **a transportation-themed exhibition space, theme park or building/building complex with a total gross floor area of at least 15,000 sqm** that has been built or is under construction in accordance with the design; or

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4. main architect or design architect service that was performed in accordance with the terms of the relevant contract, concerning the design of the **revitalisation of an industrial or brownfield site with an area of at least 50,000 sqm, containing innovative structural elements**, that has been implemented or is in the process of being implemented in accordance with the design; or
5. design service that was performed in accordance with the terms of the relevant contract, concerning the **content development and design of an exhibition containing modern exhibition solutions, with an area of at least 1,000 sqm** that has been implemented or is in the process of being implemented in accordance with the design.

Information and declarations concerning the references will have to be submitted through the website of the design contest (by filling out the relevant parts of the application form). Applicants will be liable for the truthfulness of the information they state.

For Applicants that are invited directly, it will be sufficient to submit a single reference that full meets any of the above conditions.

Other Applicants that wish to be ranked within the participation limit are advised to submit as many references that meet the above conditions as possible.

Apart from listing references on the online application form of the design contest, all Applicants need to attach their portfolio of references in PDF format (the content of this document must match the list of references stated on the application form).

3.1.2 Submitting requests to participate

Applicants will be required to use the website of the design contest to upload all documents that are to be submitted in the pre-qualification phase (confirmation of professional capacity and information for ranking) in line with the provisions of Decree No. 424/2017 of the Hungarian Government. The process consists of the following steps:

- registration on the website;
- filling out the application form;
- finalising and submitting the request to participate.

Applicants will have to submit their requests to participate with the timing stated on the website of the design contest.

The application process will be completed with the submission of requests to participate, and once submitted, Applicants will not be able to modify the documents or remedy any deficiencies in them.

Applicants that are found in the pre-qualification phase to have the required capacity but have not been directly invited by the Contracting Authority will be ranked on the basis of information and documents uploaded through the website. Please note that the Contracting Authority will not make a distinction between information concerning professional capacity and information required for ranking when such information is uploaded over the website; rather, it will verify whether the professional requirements are met and then rank the Applicants the basis of all of the uploaded documents and data.

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3.1.3 Ranking criteria

Requests to participate that satisfy the capacity requirements and are therefore valid will be ranked by the Contracting Authority on the basis of the following criteria. The Contracting Authority notes that the requests to participate submitted by directly invited Applicants will not be ranked. The applications will also not be ranked if the number of valid applications is below the participation limit.

| RANKING CRITERIA | WEIGHT RATIO |
|---|--------------|
| A. <i>Number of the submitted references that meet any of the capacity criteria</i> | 10% |
| B. <i>Number of the submitted references that meet the No. 1. capacity criteria</i> | 20% |
| C. <i>Number of the submitted references that meet the No. 2. capacity criteria</i> | 10% |
| D. <i>Number of the submitted references that meet the No. 3. capacity criteria</i> | 10% |
| E. <i>Number of the submitted references that meet the No. 4. capacity criteria</i> | 10% |
| F. <i>Number of the submitted references that meet the No. 5. capacity criteria</i> | 10% |
| G. <i>The number of prizes or awards received by the Applicant, the consortium partner, the contributor or the participant involved in the design, who took part in the design of the reference works for any of the eligibility requirements</i> | 15% |
| H. <i>The number of awards won in design contests with submitted reference designs that meet any of the capacity criteria</i> | 15% |
| Total | 100% |

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3.1.4 Scoring

Scores will be given proportionally in connection with each ranking criterion, where the highest number of references will receive 100 points in the case of each criterion. The rest of the scores will be determined from 1 to 100 as a proportion of the highest score, on the basis of direct proportionality in accordance with the following formula:

$$P = (A_{\text{reviewed}} / A_{\text{best}}) \times (P_{\text{max}} - P_{\text{min}}) + P_{\text{min}}$$

P: score given to the application for the relevant criterion

P_{max}: the highest possible score, i.e. 100

P_{min}: the lowest possible score, i.e. 1

A_{best}: number of references in the best application

A_{reviewed}: the number of references stated in the reviewed application

The total score will be calculated by adding up the weighted scores for each criterion. The final ranking of the Applicants will be determined by the total score, with the highest score ranked first. In addition to Applicants that are invited directly and confirm their professional capacity, the highest ranking and each successive Applicant will be invited to submit a design proposal until the participation limit (15) is reached.

If two or more Applicants receive the same total score, the Contracting Authority will rank that Applicant higher which has more references with respect to the ranking criterion. If there are Applicants that are still ranked equally, the Contracting Authority will determine which will be ranked higher by drawing lots.

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3.1.5 Pre-qualification phase – questions and answers

Questions may be asked and answers will be provided on the website of the design contest, in accordance with the timing specified in Section 2.8.1 above.

3.1.6 Announcement of the results

The Contracting Authority will announce the results of its review of the professional capacity of the Applicants. The announcement will list the qualifying Applicants that have been selected for invitation in accordance with the participation limit. The Contracting Authority will then within five days invite the selected Applicants to submit their design proposals and make available to them the parts of the design contest brief that have not been disclosed up to that point.

3.2 DESIGN PHASE

3.2.1 Site inspection

The Contracting Authority will conduct a site inspection after the start of the design phase. The date and time of the site inspection is specified in Section 2.8 above, whereas its venue will be stated on the website.

During the event, a representative of the Contracting Authority will present information about the site and the interested Applicants will then have the opportunity to inspect the site.

A report will be prepared to record the site inspection. The report will be available on the website for downloading.

3.2.2 Questions and answers

Applicants that are invited to participate in the design phase may query the Contracting Authority in connection with the design contest through the website until the time limit specified in Section 2.8.2 above.

Questions that are asked before the time limit will be answered by the Contracting Authority by the time limit specified in Section 2.8.2. All questions and answers will be posted on the website. The answers given to the responses will then constitute an integral part of the brief.

3.2.3 Content requirements

Design sheets

- site drawing for the entire design area and any related areas in a scale of 1:1000;
- landscaping designs for public spaces and outdoor exhibition venues in a scale of 1:500;
- layout drawings for unique levels in a scale of 1:250 (in the light of the large size of the existing buildings, the layout drawings can be broken up the several design sheets);

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- typical cross-section drawings in a scale of 1:250;
- typical façade drawings in a scale of 1:250;
- visualisation images from key perspectives – with views of the entire site and of indoor and outdoor spaces (at least 10 images; for more information on fixed-perspective images, please see the annex);
- conceptual designs of the train station in a scale of 1:250.

Technical specifications

- Brief textual description about the architectural and landscaping concept, and about technological and structural solutions – not more than 20 A4-sized pages, with the following content:
- architectural concept;
- landscaping and urban planning concept;
- concept for the train station;
- functional matrix;
- utilisation of existing buildings;
- technological and structural solutions;
- materials;
- technical specification for MEP systems;
- operation;

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- sustainability;
- timing and cost estimation.

Tables

- area statement about the categories of rooms in the buildings in A4 format, by filling out the relevant table included in the annexes;
- cost estimation by filling out the relevant table included in the annexes.

3.2.4 Formal requirements

The design proposals have to be submitted online, on the website of the architecture competition, in electronic format, in accordance with Government Decree No. 424/2017 (XII.19.). Under Sections 3(1)c) and d) of the Government Decree, the Contracting Authority allows and requires the Applicants to submit the design sheets in sealed packaging which meets the requirements applicable to courier, postal and express delivery consignments. If a design proposal is submitted in hard copy, it must arrive before the deadline of the submission of the proposals. The downloaded address sheet must be placed in its original form on the packaging of hard copy design proposals. Apart from the text provided on the address sheet, displaying other text or markings on the packaging is not permitted.

3.2.5 Electronic and hard copies

Design proposals submitted electronically will have to meet the following formal requirements:

- designs sheets (landscape orientation; size: 707x1000 mm, ISO B1; pdf file format); file name: 1_1-12.pdf
- technical specification (portrait orientation; size: A4; pdf file format); with clickable table of contents in the sidebar with bookmarks; file name: 2.pdf;
- spreadsheets (area statement and cost estimation) in excel format; file name: 3.pdf;

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- visualisation images with a resolution of 600 dpi in .jpg format; file name: 4_1.jpg, 4_2.jpg etc.
- Applicants will also have to submit drawings in scalable .dwg vector graphic format. The Contracting Authority may only use these files for the purposes of evaluating the designs during this design contest. File name: 5.dwg.
- Applicants may submit any other electronic graphics, figures and visual images that provide assistance in the understanding of the designs.

Applicants will have to provide drawing numbers for design sheets, in keeping with the requirements of anonymity.

All background information (author, the user last modifying it, access path, all data, which potentially could entail the infringement of secrecy etc.) will have to be removed from all electronically submitted files. Applicants will solely liable for compliance with this requirement, and the failure to comply with it may result in disqualification.

Design sheets submitted in hard copy must be in the following format:

- up to 12 design sheets in B1 format;
- in landscape orientation;
- in colour print;
- mounted on foam boards or other rigid boards;
- with unique identification code for each design sheet, marked in the upper left corner;
- each design sheet must display the title of the design contest, the design number according to the table of contents and the name of the figures and charts.

The print materials will have to be submitted in one copy.

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3.2.6 Submission of the design proposals

In accordance with the above, full design proposals may only be submitted electronically through the design contest's website. The time limit for arrival (uploading): 21 January 2019.

The design sheets will also have to be submitted in hard copy, in accordance with formal requirements stated above. The hard copy documents must be submitted in a sealed package with dimensions of 707x1000 mm, as registered postal consignment or with an officially registered express delivery service to the address stated in this brief. The address sheet downloaded after registration must be displayed on the envelope in its original form. Apart from the text provided on the address sheet (including the ID code), no other text or mark may be displayed on the envelope.

Address: Hungarian Museum of Science, Technology and Transport, Museum of Electrical Engineering H-1075 Budapest, Kazinczy utca 21., Zippernowsky- terem

Time limit for the receipt of design proposals: 21 January 2019.

Regardless of whether the hard copies are sent by postal delivery or with an express delivery service, the time of receipt of a design proposal will be the later of the time when the design proposal is uploaded to the website and when the package including the design sheets is delivered at the above postal address. Design proposals received after the time limit will be disqualified by jury without opening the package. Design proposals submitted electronically and in hard copy will be opened at the same time. If there is a discrepancy between the electronic design proposal and the hardcopy design sheets, the issuer of the design tender regards electronically submitted applications as official.

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3.2.7 Anonymity

The design proposals may not violate the requirement of anonymity. None of the postal consignment or the electronic submission that includes the design proposal, the design sheets or any other document may bear or display any signature, slogan or sign that in any make a reference to the author(s) of the design proposal. Design proposals may not include any reference to the identity or workplace of its author(s). Any design proposal that violates the requirement of anonymity will be excluded from the evaluation by the jury.

3.2.8 Evaluation criteria

Architecture and urban planning:

- building and its environment, integration into the cityscape;
- architectural quality and novelty;
- landscape architecture: community areas and green surfaces;
- public access: transport solutions;
- connection between the railway station and the museum complex;
- functional connections: internal and external connections;
- compliance with proposed functionality of rooms and premises;
- monument protection aspects, integration with immediate environment;
- balance between architectural innovation and rationality.

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Support for institutional vision and programme:

- placement of objects and vehicles on display;
- creation of an internationally prominent museum;
- historical and conceptual presentation;
- seamless integration between exhibition and building;
- sustainability and possibility of cost-effective operation;
- adjustability of interior spaces, flexibility;
- budget compliance.

Museum technology és artwork protection:

- placement and replacement of objects on display and in storage;
- visitor routing;
- application of state-of-the-art museum technology;
- sustainability and operation;
- smart solutions;
- green concepts, environmentally friendly building and surroundings;
- low operating costs, favourable use of materials, energy awareness;
- cost effectiveness, rational design.

3.3 POST-CONTEST PROCEDURES

3.3.1 Announcement of the results

On the basis of the decision of the jury, the Contracting Authority will publish the result of the design contest on 28 February 2019, and it will pay the prizes and the purchase price to the authors of the winning entries (or their representatives) within 30 days after the announcement of results.

Time and venue of the announcement of results: as stated on the website of the design contest. The announcement will be open to the public. In accordance with Section 27(3) of the Government Decree, the members of the jury and the authors of prize-winning and purchased design proposals will be invited to the event by the Contracting Authority in a notification sent through the design contest's website. The final report of the design contest will be accessible to all registered Applicants on the design contest's website.

The Contracting Authority may publicly exhibit the design proposals received during the design contest. The Applicants and the members of the jury will be informed by the Contracting Authority on the design competition's website about the time and venue of public exhibition.

In the light of the cultural nature of the design contest, the Contracting Authority will also retain design proposals that do not receive any prize or are not purchased. If an Applicant requests that its design proposal be returned to it, it should let the Contracting Authority know in writing after the announcement of result, and indicate the relevant postal address.

In accordance with an agreement between the Chamber of Hungarian Architects and the Contracting Authority, the Chamber of Hungarian Architects will publish the result of the design contest and display the prize-winning and purchased design proposals on its website, and it will archive the designs. The Museum of Transport will also display the prize-winning and purchased design proposals and archive them as a part of its collection.

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3.3.2 Negotiated procedure

In accordance with Section 28 of the Government Decree, the Contracting Authority will, as a result of the design contest, conduct a negotiated procedure without prior publication of a notice in order to sign a design contract, where the Applicant(s) will be invited on the basis of the decision in the jury's final report.

It is planned that the public procurement procedure associated with the ordering of the design services after the design contest will start within 60 days after the publication of the results.

The Contracting Authority will compile its requirements to the winning bidder (**Designer**) in the negotiated procedure without prior publication of a notice in the form of a draft contract for design services, which will contain at least the major contractual terms and conditions and will be delivered to the Applicants invited to participate in the design phase. Such contract for design services will be, following the design competition, the basis for the negotiated procedure. The Contracting Authority reserves the right to make modifications to the draft contract.



[4 BACKGROUND]

4.1 MUSEUM OF TRANSPORT

4.1.1 History of the Museum

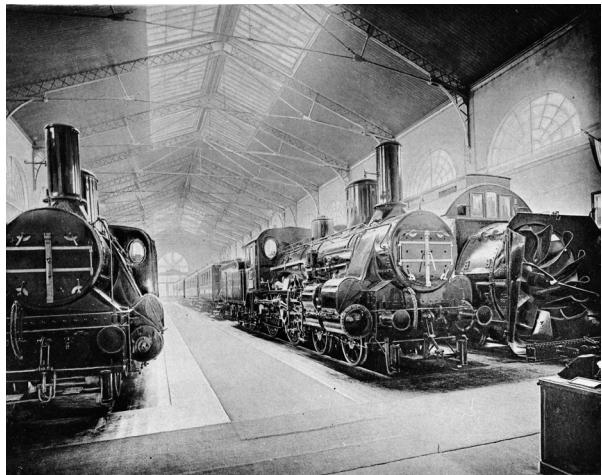
The Museum of Transport in Budapest is one of Hungary's oldest museums of technology; its collection and exhibitions have been internationally known and appreciated in the past just as they are today.

In the millennium year of 1896, a grand exhibition was organised in Budapest, in Városliget (City Park). In the pavilions erected in the park, Hungary had the chance to introduce itself to the world: in 240 pavilions objects, inventions, and products were presented that were exclusively of Hungarian origin. It was intended to give a full picture of the past and present by gathering together the traditions of Hungary, and all the results achieved in the field of culture and science. The field of transport also belonged here. The items - collected with meticulous deliberation – certainly aroused the curiosity of the public at the end of the 19th century. Thus, the organisers decided to keep the valuable collection together, and to establish a permanent museum in order to keep and develop the selection further.

The millennium Transport Hall was designed by Ferenc Pfaff, main architect of the Hungarian Royal State Railways, and similarly to other pavilions, it was designed to be temporary; however, after the museum was built, it was continuously developed into a permanent building. The pavilion – which was one of the most compelling ones at the 1896 exhibition – was built in a romantic-eclectic style. Its 3,100 square metre exhibition space hosted the most important objects of railway, shipping and water construction, as well as post, and telegraph offices. Beside vehicles, parts, décor objects, and several models, photographs, maps, drawings, and tickets presented the development of Hungarian transportation – completed by international items.



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The main spokesman for the establishment of the Museum of Transport was Kajetán Banovits, the first director of the institution. Due to his persistent work, the Minister for Commerce gave permission to set up the museum, which opened on 1 May 1899. The collection was developed continuously, while – in the meantime – the Hungarian and international machines and models of aviation were also given a place in the building. However, the lack of space soon became apparent, and as a result several plans were formed to extend the museum. However, these concepts were impeded by limited financial resources and the two world wars.

In 1944, towards the end of World War II, the museum was hit by two bombs, which caused severe damage to the building and the collection. It was only at the end of the 50s that a decision was made to renovate the building. The museum was re-built in a more modest way, according to the taste of the age. The Museum of Transport re-opened its gates on 2 April 1966.

The preparation of the new permanent exhibition also demonstrated that the museum aspired to be more than just a preserver of objects and artefacts but to become a centre for transport history research. In 1971 the Museum of Transport received the status of national museum. The institute expanded with more and more exhibition places from the 70s on, and finally, the central building of the museum was extended with a new exhibition building in 1987.

In accordance with a 2009 decision regarding the integration of the Hungarian Museum of Transport and the Hungarian Technical Museum, the most significant exhibition venues of Hungarian industrial and technical heritage had been united under the roof of one institution, the Hungarian Museum of Science, Technology and Transport.

The Hungarian Museum of Transport stayed open for visitors up until 2016, when the demolition of the museum building commenced parallel with the reconstruction of Városliget. According to the original plans, the collections would have been reinstalled in a new museum building modeled after the original construction of 1896, and supplemented with underground exhibition halls. This plan proved to be inadequate for housing the largest items of the collections, therefore, after considering various possible locations, the new museum complex will be built on the site of the former Northern Maintenance Depot – an outstanding industrial heritage site located in Kőbánya, a neighbourhood of the 10th district of Budapest.

The great majority of the museum's valuable collection is currently stored in leased storage facilities. The main aim of the creation of this complex is to provide appropriate housing for the entire collection, and to allow for the museum to evolve into a true intellectual hub.

4.1.2 Background of the Museum

The Hungarian Museum of Transport, as a member institute of The Hungarian Museum of Science, Technology and Transport, is under state administration. In addition to the resources provided by the government budget of Hungary, the museum aims to achieve the highest income possible from the operation of the new building by providing an event venue, catering facilities and commercial functions.

4.1.3 The mission and goals of the Museum:

- the creation of an experience-driven and visitor-friendly museum: the museum and exhibition themes put the personal perspective and the visitors' and guests' complex experience at the centre; the content-transfer is mainly experience-based;
- the establishment of a multigenerational community space: the museum is a public institution serving city residents, city users and visitors; it offers programmes and experiences to families, children, school parties, older people, as well as Hungarian and foreign tourists alike;
- the setting up of a family-friendly museum: the museum sought to position itself as the most family-friendly museum in the country;
- the communication of clear social messages: transportation and public transport have always sought future-forming, sustainable, and innovative solutions in the past, and still do the same today in line with social needs: we look at the past through the context of today;
- the focus on people: the exhibition puts not only the vehicles but also the people at the centre who invent, operate and use them; so the museum primarily presents the world of society reflected in means of transportation;

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- the presentation of people and stories: by showcasing personal relationships, the exhibition aims to tell stories that are as specific as possible, thereby bringing the abstract content closer to visitors, enhancing personality and experiences;
- Hungarian history and international interpretation: the museum clearly declares its task to be the presentation of Hungarian stories, all of this in a way that is attractive, interesting and comprehensible to foreign as well as domestic visitors;
- interdisciplinary approach: transport is an integral part of everyday life, and this is why it is presented through a complex approach to social history, history of transport, historical anthropology, microhistory and contemporary knowledge;
- coexistence of past-present-future: the exhibition's goal is to put the past in the present tense with modern tools, also to transfer understandable messages, current and relevant information, and advanced knowledge to future generations;
- respect for beauty: to make the messages of the past more lovable and exciting to the future through the aesthetics of the tools and equipment of ancient times;
- identification: contemporary identification, up-to-date theme processing, clear positioning.

4.1.4 Tasks and functions of the Museum

The Hungarian Museum of Transport has been a host to the innovative thinking, the presentation of the results of the Hungarian and European automotive industry, transportation sciences and achievements of renowned technical inventors for nearly 120 years. As one of Europe's earliest transport museums, it has, since its establishment, pursued an important mission to attract people's interest to transport, to disseminate transport-related knowledge and to support professional research.

The purpose of the development is to create a new museum complex matching the level of the world's most recent technical, science and natural science museums, and to solve the long-standing issue of accommodating the institution for a long time, to be able to receive 300,000 visitors a year, by renewing the old traditions. The aim is to provide an inspirational background for innovation by presenting the past of the transport industry for future-oriented solutions. The modern museum as a multi-generational community space will be able to present the history of Hungarian transportation with an experience-based, friendly environment, focusing on the visitor, in an internationally interpretable context with an interdisciplinary approach. The renewal of related art and archive warehouses and restoration workshops ensures the long-term, successful preservation of transportation memories for posterity. The aim of the new museum site is to provide a noteworthy place not only as an institution, but also as a characteristic architectural complex on the map of Budapest and Europe.

The permanent exhibition will be placed in the centre of the new exhibition site of the renovated Museum of Transport. Temporary exhibitions are to be organized around this, as well as the additional spaces providing a venue for the institution's knowledge and research centre. The knowledge centre will accommodate the research services, library facilities, archive and document library, as well as the repository. At present, the Museum's capacity to provide these services is limited.

With respect to the exhibition halls, it is essential to set up a temporary and installation warehouse for temporarily storing the artefacts, exhibition installation and packaging materials. In order to store artefacts the Museum plans to create a storage area that can be visited in accordance with the prevailing artefact preservation requirements. Since the permanent exhibition has limited capacity to make the artefacts

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available and viewable to those interested, from time to time the planned storage could give visitors a glimpse of the pieces that fit less well into the exhibition theme of our collection. With respect to the artefact storage, we also aim to establish restoration workshops that would be able to provide high-quality training places for professions that have or are set to disappear.

Besides the new building's basic features mentioned above, the museum's additional functions, such as the rooms for museum pedagogical activities and the museum indoor play centre also play an important role. The leisure and entertainment features are loosely linked to exhibition functions, but make an indispensable part of the concept defining the new museum's approach. According to the Museum's long-term strategy, the institution wishes to become a popular tourist destination that can operate a 450-seat separable conference room, a restaurant with a capacity for 200 guests, and a unique gift shop offering a wide range of products.

One of the central organizing principles of the new museum is its focus on people and experience, we find it important to make the building complex of the Museum and its surroundings an attractive community space. We wish to develop a theme park and an open-air exhibition space around the building, which is organically linked to transportation and the history of transport.

4.2. THE COMPETITION AREA

4.2.1. The history of the premises

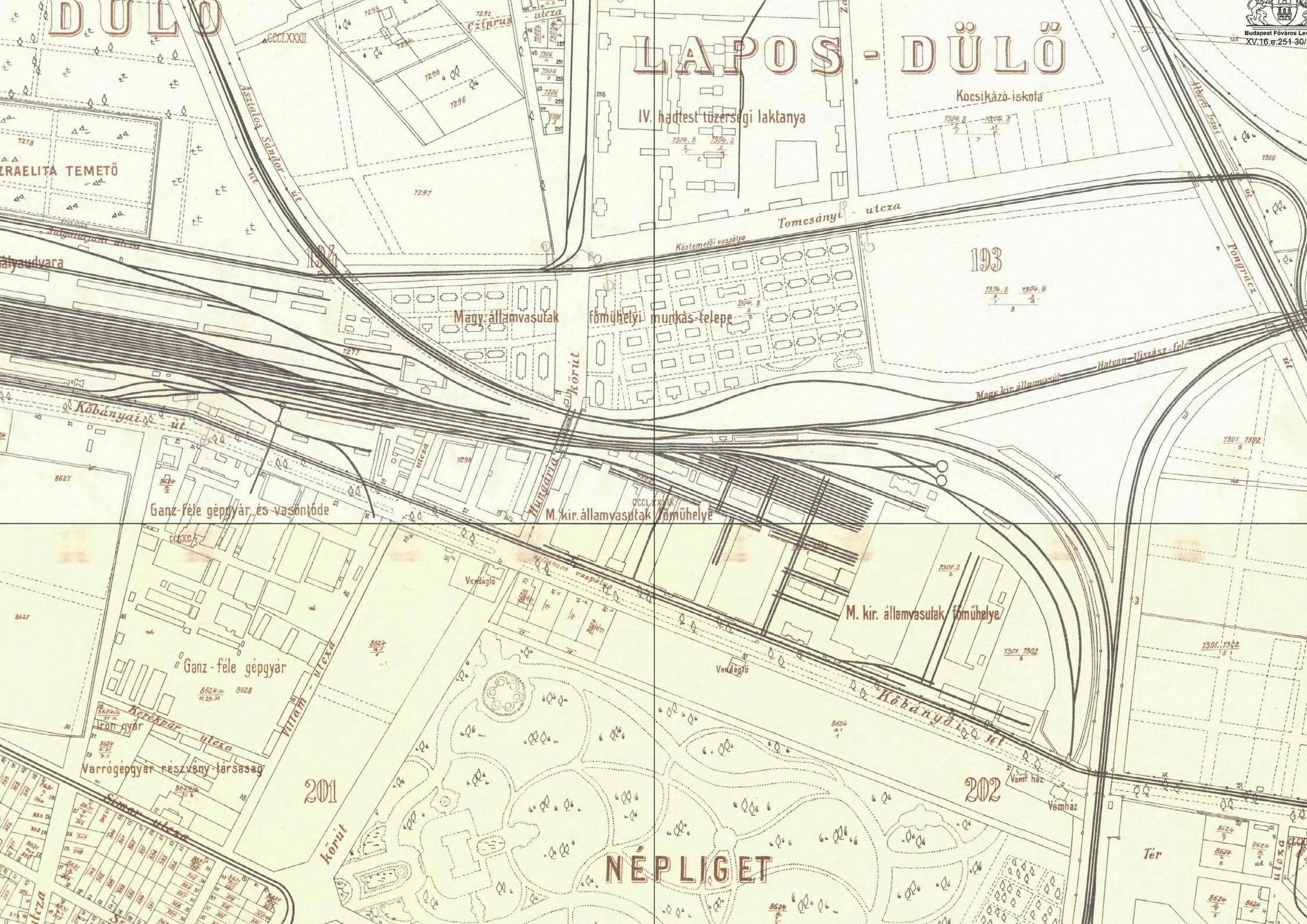
The 10th district of Budapest, Kőbánya was integrated into Pest in the 18th century. The name of the suburb refers to quarries that had been worked in the area for a long time. During the rapid construction of the nearby metropolis, quarries and brick factories served the construction sites, while agriculture in the district was also significant: in addition to vineyard-winery, brewing and pig breeding were also major activities. Kőbánya was developed into one of the most important industrial areas of Pest. The main connection with the city is Kőbányai út (Kőbányai Street).

The history of the Hungarian railway began here: in 1827 a special horse-drawn funicular was built between the quarries and the city, but the experiment proved to be unsuccessful. However, a very early network of railway lines appeared in the area, which determined the structure of the district for a long time. Following the Szolnok line of Hungarian Central Railways (1847), the first station of the Hungarian Royal State Railways in Pest, the Józsefváros Railway Station (1867), was established and the railway line to Hatvan started from here.

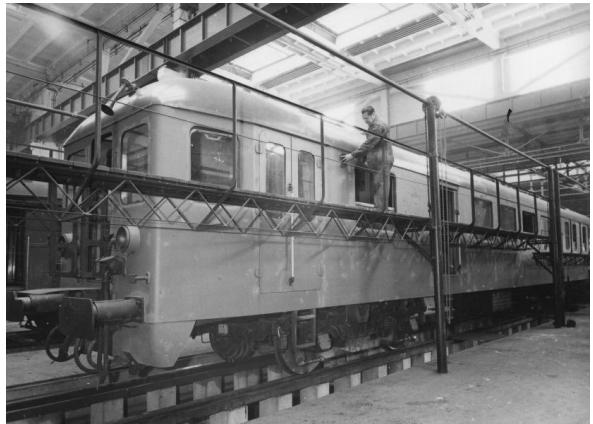
The presence of railway infrastructure attracted the first plants of the Hungarian railway vehicle industry to the proximity of Kőbányai út. On the southern side of the Kőbányai út, the Ganz machine factory and iron foundry were built at a later point. The MÁVAG factory was built in its vicinity, while in order to improve the ever-expanding vehicle fleet, a vehicle repair plant was established on the northern side of the road, which was awarded the rank of main workshop. In 1875 it reached its final, current location and named MÁV Maintenance Depot.

The GANZ and MÁVAG factories, which had been present in Hungary and in remote markets since 1900 with world-class products, were merged in 1959 under the name GANZ-MÁVAG.

The city's first urban plan designated Kőbánya as an industrial district, and furthermore other public but fundamentally peripheral institutions such as garrisons, a jail, and the new public cemetery were established here. The woody area south of Kőbányai út was turned into a public park in 1888. This is today's Népliget (People's Park), the second largest public park in Pest, its heyday were the decades before World War I (a protected historical garden since 2005).



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The site of the Northern Maintenance Depot was originally an area with high-groundwater, swampy, and unfit for construction, drenched by ditches. The swampy lands were dried up by drainage and large-diameter canals over a period of decades. The Maintenance Depot reached its full scale at the beginning of the 20th century. The chance to establish the track connection from Józsefváros Railway Station was given on the north-western corner of the area. The layout of the plant is characterized by a parallel track line to Kőbányai út and transfer tables perpendicular to it, which have exposed several large halls. The most significant of these is the construction of the so-called Eiffel Hall built according to a design by engineer János Feketeházy in 1886, which was one of the largest among the steel halls of Hungary at the time of its construction. The Northern Maintenance Depot was Hungary's most important railway vehicle repairer. In addition to steam locomotives, passenger and freight wagons were repaired here, and even some locomotives were built.

The area was damaged by fire in the 20th century several times and then in World War II sustained severe damage from air raids and siege. After the rebuilding of the Maintenance Depot, production started immediately after the war, and from 1949 it continued to operate under the name MÁV Északi Járműjavító – MÁV Northern Maintenance Depot. As a result of the change in the railway trains, electric and diesel locomotives were placed in the workshop. In order to modernize technology, the Diesel Hall and the Kőbányai út headquarters including offices and locker rooms were built between 1959 and 1962 – these are the new venues of the Museum of Transport. In the 1970s, more new workshops were constructed.

Industrial facilities started to decline in the area in the 1990s. The GANZ-MÁVAG ended its production, and the Józsefváros Railway Station was closed down in 2005. The Northern Maintenance Depot ended its activities in 2009.

4.2.2 Position in urban structure

The former Northern Maintenance Depot is located in Kőbánya, in the capital's transition zone, which surrounds the traditional inner-city centre of Pest in a wide semicircle. In general, this is a heterogeneous area with land use conflicts, where industrial, warehousing, transportation and public utilities, as well as wedging residential and green areas overlap one another.





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Located in the transition zone is one of the most important urban development reserves of Budapest: and provided large areas of territory in the 19-20th century. This was originally planned to serve large industrial customers, with public utility and transport infrastructure capacities and the relative proximity to the traditional city centre. However, the deterioration in building stock poses significant obstacles to its development as does industrial pollution, and structural deficiencies in the urban fabric. For this reason, the development of brownfield sites typically requires a complex series of long-term urban development involving multiple parties.

The planning area is located at the intersection of two important public roads - the junction of Könyves Kálmán körút (Könyves Kálmán Boulevard) and Kőbányai út. At present, from the perspective of Budapest's comprehensive urban structure, this node is not regarded as being a significant spot; it occupies an intermediate position as a junction outside the network of other interlinked subcentres of the city.

Budapest's largest 93-hectare urban park, Népliget is located in the immediate vicinity of the Northern Maintenance Depot. It is separated from the future cultural district by just a one-lot-deep row of houses on the southern side of Kőbányai út.

4.2.3 Traffic characteristics

The Northern Maintenance Depot lies within a relatively favourable, well-explorable area. Könyves Kálmán körút, Budapest's outermost urban-style road ring, runs along the inner side of the development area and intersects with Kőbányai út here. The latter is the secondary radial axis out of the city centre, which was designed, in the 18th century, to provide connections to the outer-Pest districts. Könyves Kálmán körút is the outermost proper boulevard of Budapest. It is part of the greater beltway and plays an important role in road traffic and public transport alike.

The Northern Maintenance Depot can be easily accessed via the main road network, but it is separated from surrounding neighbourhoods by railway lines running along the embankment. The lower public area network is fragmented partly because of this and partly because of the formerly closed industrial premises, while its finer-woven elements are almost entirely absent.

(See detailed transportation studies in Annex 6.12.)

Public road network

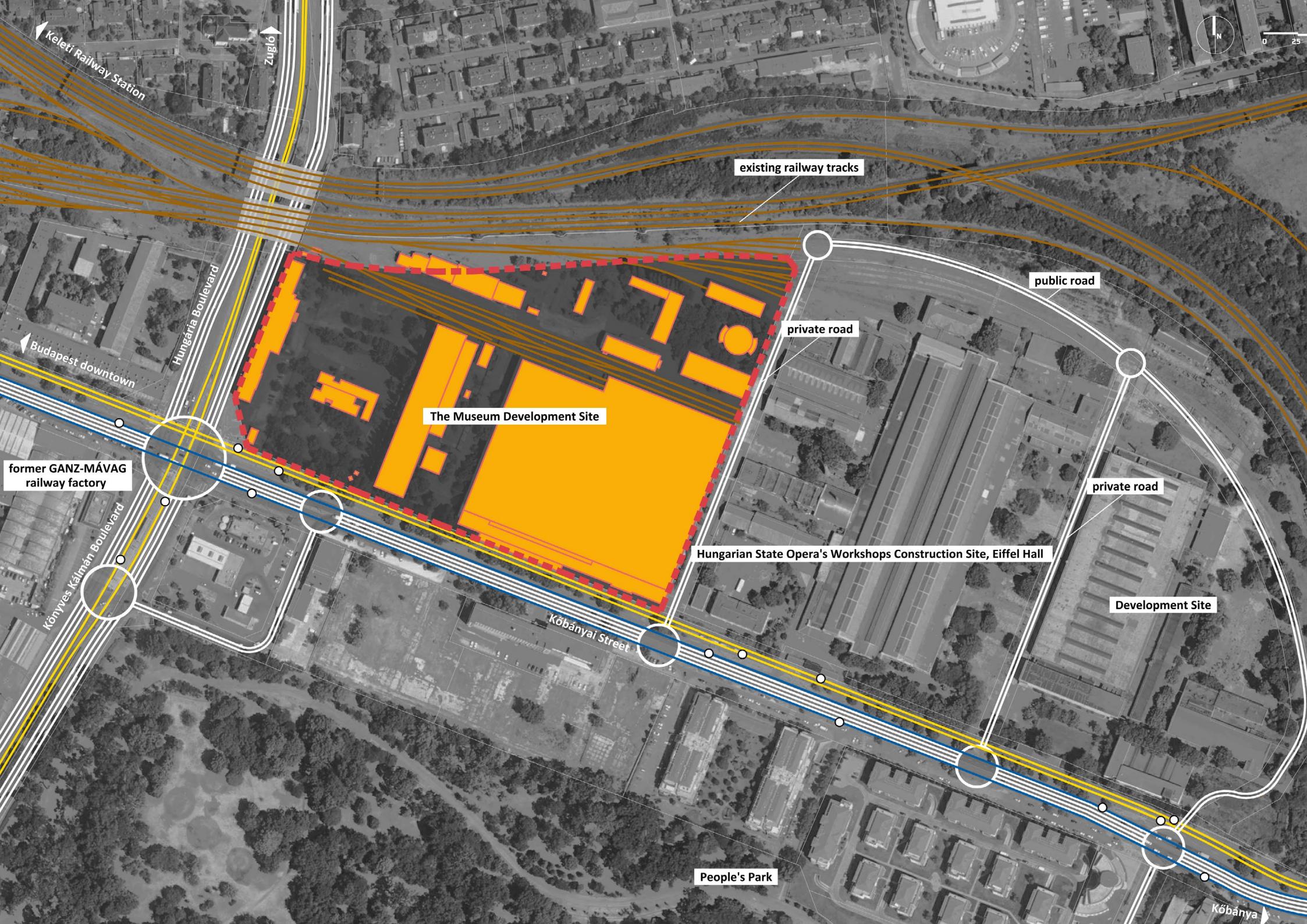
The development area is located on the main road network of Budapest, at the intersection of the radial 2x2-lane Kőbányai út (Kőbányai Street) and the ring-like 2x3-lane Könyves Kálmán körút (Könyves Kálmán Boulevard). Both main roads are packed in the peak period, utilizing the maximum capacity of the node. Könyves Kálmán körút allows drivers to turn on Kőbányai út past oncoming traffic, but from Kőbányai út this is only possible through the first minor junction towards Népliget.

A typical characteristic of the development of the the Könyves Kálmán körút is the underpass passing through beneath the railway tracks, which had been built in several phases at different depths, and the cross section of the road is peculiarly distinct. Under the railway bridges, in the northern direction height restrictions apply.

The Northern Maintenance Depot is bordered by a railway track on the North and East. The public road service for the previously unified plant was provided through the gates opening to the Kőbányai út, and there was also an inconvenient drive-in option from the Könyves Kálmán körút junction.

During the overall development of the area on the north side along the railway line, a 2x1-lane exploration road will be constructed, which is planned to be connected to the Kőbányai út at the Kismartoni út (Kismartoni Road) on the eastern side of the former Vehicle Repair Works with a fully-fledged junction. Towards west, it will run on the bridge over Könyves Kálmán körút to Salgótarjáni út (Salgótarjáni Road). This road is connected to the Kőbányai út by north-south bound private roads at the borders of each institution according to the new land division of the development area. From among the latter, the junction of the road between the Opera Workshop House and the Museum of Transport will be built to provide a full-fledged, wide-range connection. If the western route of the exploration route is realized, an additional north-south bound street is designed in the place of the former Józsefvárosi Railway Station, which is also connected to the Kőbányai út with a complete T-junction.

For the construction of the railway station, it is relevant that the inner road network of the MÁV (Hungarian State Railways) housing estate along the track is on a residential-leisure zone. Geometric features here do not allow transit traffic either.



Parking

Inside the Northern Maintenance Depo spacious covered surfaces are available at the moment, but only the Törekvés Cultural Center has parking needs. Outside the project site there is parking opportunity only at the south side of the Kőbányai út, and 70-80% of the parking lots are used by local residents.

Public transportation (Tram and bus traffic)

The location can be reached by tram No. 1 running on the Hungária körút (Hungária Boulevard) and the Könyves Kálmán körút and the Trams No. 28 and 62 on Kőbányai út. Tram No. 1 is one of Budapest's most important ring-shaped tram lines connecting Óbuda and Kelenföld through Pest, with a daily passenger traffic of 40,000; metro connections provided by the nearby Puskás Ferenc Stadium (M2) and the Népliget (M3). The middle-course track is in good condition; the stops were completely renovated in 2014 and are accessible for the disabled.

The final station of the tram line on Kőbányai út, which supplies 7,000 people daily, is on Blaha Lujza tér, where it is also possible to change to the M2 metro line and the Trams on the Nagykörút (Grand Boulevard) as well as to the buses running on Rákóczi út (Rákóczi Street). The outer part of the tram line connects the centre of the 10th district and then the business areas of Kőbánya. The line runs on the Kőbányai út side section, which hampers the approach to properties and is a potential cause of accidents. Track conditions are moderate. The tram stop on the Könyves Kálmán körút is not accessible for the disabled, but the stop in front of the Opera Workshop will be modernized and accessible by 2019.

Tram No. 37 runs on the nearby Salgótarjáni út, the terminus of which is also on Blaha Lujza tér (Blaha Lujza Square). This currently plays a minor role in access to the Northern Maintenance Depot.

Bus No. 9 performs an important role in transport. It carries 12,000 passengers per day between the centre of Kőbánya and Óbuda, serving Deák Ferenc tér (Deák Ferenc Square) in the city centre. There are two stops near the design area, at the junction of Könyves Kálmán körút and at the Opera Workshop - the latter is also about to be rebuilt.



Rail connections

The area from the north is bounded by the lines 1, 80 and 120 of the Hungarian State Railroads to the Keleti Railway Station to provide direct suburban, long distance and international connections both to west (Tatabánya, Győr, Vienna, etc.), to east and south (Szolnok, Debrecen, Nagyvárad, Arad, etc.). There are 55,000 passengers passing through here daily, no freight traffic exists here. These lines do not have stop on this section, so they do not play a role in serving the area.

The former Józsefvárosi railway station, parallel to Kőbányai út, is located west of the planning area. This station ceased to serve passengers since 2005 due to the technical condition of the railways and its unfavourable transfer connections. The dismantling of the railway facilities will start in 2018, and they places will be replaced by sports and leisure centres.

The Northern Maintenance Depot had an extensive internal track network, which once allowed the vehicles and components to be moved between the halls. The planning area includes a track group serving the Diesel Hall; the extension of which, towards the Opera Workshop, has already been dismantled. The industrial track exiting from the museum area joins to the track lines of the abandoned Józsefvárosi railway station through the bridge over the Könyves Kálmán körút. It has no other connections at present.

In the context of this design contest, a government decision was made to build a train station near the planned museum complex, which will be served by suburban railway lines No. 80 and 120. This will lead to the long-awaited transfer possibility between railways and urban transport – primarily Tram No. 1 – which will serve an estimated 8,000 passengers daily, primarily commuters to occupational traffic. Passenger traffic here will have a significant impact on the internal operating order and exploration of the design area.

Pedestrian traffic

Due to its isolation, the area has relatively weak features: in the surrounding public areas, due to the significant distances and the closed nature of the site, pedestrian traffic did not feature during the golden age of the Northern Maintenance Depot either. Workers typically reached the plant by community transport. Its main gate is in the middle of the development area in front of the current Opera Workshop.

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Access to Törekvés Cultural Centre and the neighbouring Kindergarten is possible from the corner of Könyves Kálmán körút; the rest of the museum area can be accessed via the other gates to Kőbányai út.

There is no pavement next to the development area on the north side of Kőbányai út. The property is fenced off directly along the tramway. The small number of pedestrians use either the suitably constructed south sidewalk or – albeit in a disorderly way - the bicycle route.

There is still a relatively significant traffic transfer at the junction of Kőbányai út and Könyves Kálmán körút today, with 6,000 daily transfers between Tram No. 1 and Buses No. 9, 28 and 62. This number will be increased with a further order of magnitude by the passenger train traffic of the new railway station.

It presents a problem that Népliget can only be reached on the pavements of the Könyves Kálmán körút through a rather unattractive environment. The isolation effect of the railway line dominates completely on the north: the Salgótarjáni út and the neighbouring railway workers compound can be reached only by the underpass of the Könyves Kálmán körút, where the pavement is not accessible for the disabled.

Bycicle traffic

Not only roads and tramways intersect at the junction of Könyves Kálmán körút – Kőbányai út, but also two bicycle roads of major importance. Both routes attract significant traffic, with a width of 2,0 m. There are frequent conflicts and emergency situations between cyclists and other road users on the public road junction.

4.2.4 Environmental conditions

Climate

The climate of the area is moderately warm and dry. The annual sunshine is between 1,910–1,940 hours. Annual average temperature is 10.2-10.6 ° C. The average temperature of the summer season is 17-17.5 ° C.

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The frost-free period is close to 210 days. The highest annual average temperature is 34.5 °C and the lowest temperatures are between -11.5 and -14.5 °C. The precipitation in the region is lower than the average in Budapest, the annual precipitation is 520-550 mm. Typical wind direction is north-west, with average wind speeds of 2.5 to 3 m/s.

Soil conditions

Sandy and rocky clay on the clay-coloured base rock is typical of the region. The sandy, pebbly infertile soils were formed on the alluvium of the Danube. Because of the brownfield environment, the proportion of natural soil is minimal. Due to landscaping, track and workshop construction, surface mixing, filling or contamination, natural soil layers have also disappeared.

Judging by the state of the plant stock (root zone near the surface, weak growth), the depletion of rainwater and the former industrial function, poor soil quality can be expected with mixed filling material, gravel, building debris and sandy soil.

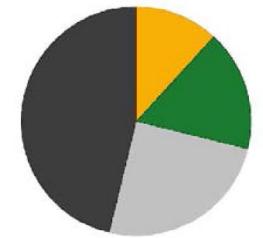
Environmental pollution

The previous activity of the Maintenance Depot caused environmental pollution. In 2009, areas of concentrated contamination were detected in 2009 in the territory. The 1971 site plan shows several underground storage facilities on the plot. Soil contamination shows an elevated value for hydrocarbons (TPH, PAH) and benzenes (BTEX). Decontamination has been partially completed in the area and is currently underway in the neighbouring development site.

The leaking waters of the works in the halls were fed into the sewage system of the plant, which are likely to be contaminated. Implementation of the development programme will require the elimination of the sewage sludge system. The floor of the operating hall is covered with oil-contaminated dust (oil spill), the collection and disposal of which is a task to be completed. Detailed soil mechanics and groundwater testing is required on the development site and if the development is realized, the decontamination tasks required by the environmental authority must be carried out.

■ EXISTING GREEN AREA
■ EXISTING PERMEABLE SURFACE
■ EXISTING PAVEMENT

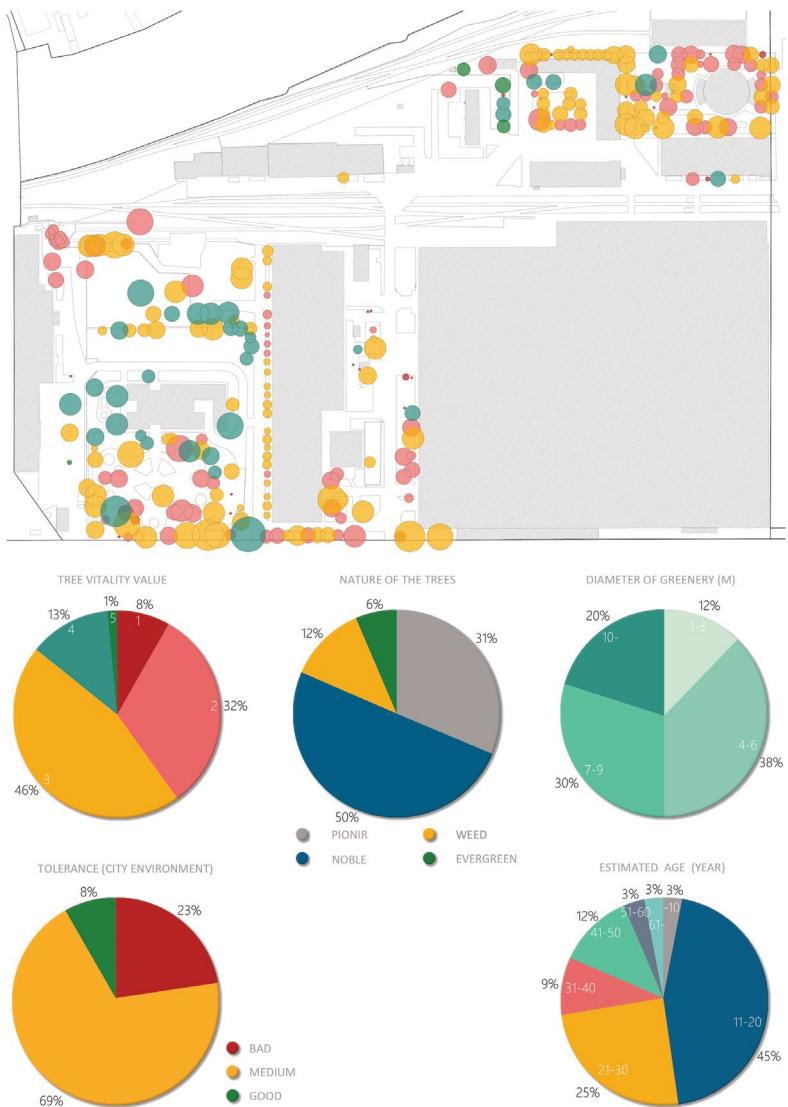
□ DEVELOPMENT AREA



0 20 100 m

NEW HUNGARIAN MUSEUM OF TRANSPORT EXISTING GREEN AREA

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Green areas

Many green areas can be found in the plot between buildings and coatings, green plantations lifted with low jamb walls, alleys and weedy, track-crossed areas. There is hardly anything left of the former garden architecture elements. There are a few fountains, dingy stones, but no benches or waste collectors have remained. There is a significant proportion of weed surfaces, especially among the tracks, which cannot be considered as green surfaces, only as free ground surfaces, water permeable, scattered coating, weedy areas. The green areas and alleys of the site reflect the lack of maintenance and care.

There are large valuable plane trees on the Kőbányai út side, at the south-west corner of the Diesel Hall, and a neglected mixed tree stock on the west side. There is a poplar alley near the Workshop Building (No 37.), around the bunker and next to the Kindergarten, there are seamless green areas. Poplar alleys and wooded grove plantation can be found on the north side, in the vicinity of the railway tracks.

Nearly half of the trees located on site are in moderately good condition, while 40% of them are critically parched. Their distribution is uneven; the majority of the healthier trees are located around the Kindergarten.

4.2.5 Public utilities

The area of the MÁV Northern Maintenance Depot estate has full utilities provision. With respect to the public utility networks built in the tracks of the bounding streets of the plot, the area is considered to be completed. Thus, the drinking water pipeline network, the combined sewage and rainwater drainage network, the power supply network, the gas supply network and the telecommunication network have been long established.

Networks within the plot

The development site is supplied with public utility connections in its present state. Most internal networks can be considered as obsolete, and in many cases they are damaged too. In the event that complex renovation is carried out there is a danger that keeping the underground elements may represent design restrictions and operational risks, so these networks need to be eliminated and new ones installed.

In front of the building site, at the property boundaries the utility service providers' water supply network, a combined drainage network system for wastewater and rainwater, the electricity grid, the gas supply and the district heating supply network and the electronic communications network are available.

Water supply

The water supply of the MÁV Northern Maintenance Depot was built as part of the unified water supply system in Budapest. The water supply network is operated by the Fővárosi Vízművek Zrt. which pumps water into the pipelines of the city from their wells installed along the bank of the Danube.

The entire Pest supply network receives the feed from the water bases through large diameter pipes. These pipes surround the block, forming a circular system of large diameter pipes, providing highly secure drinking and fire water. The branches from the large-diameter pipes are built into the distribution network.

There are three pipe connections built to supply the block, which feed the internal network inside the plots. Pipe connection No. II bounds the plot of the Museum and enters the plot near the south-eastern corner of the building of the Diesel Hall. Its size is dn. 200.

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Sewage and rainwater-drainage

Draining sewage and rainwater of the design area is achieved with a combined system, which is part of the canal system of the capital. The sewage network is operated by the Fővárosi Csatornázási Művek Zrt. The combined sewage system supplies the collected sewage and rainwater to the Csepel Central Wastewater Treatment Plant where they are cleaned, and the cleaned waste water is fed into the Danube.

One of the main core canals of the Pest Canal Network in the district of the planning area is the dn 159, then dn 210 concrete canal along the Kőbányai út. The core canal, which is also dn 210 in size, is built on the eastern side of the Hungária, parallel to east of the Könyves Kálmán körút, along the MÁV housing estate and the Northern Maintenance Depot connected to this.

Energy utilities

All wired energy sources are available for the energy supply of the current MÁV Northern Maintenance Depot. Electricity is used for lighting and technology purposes, natural gas is used to meet the energy needs of thermal energy. District heat is also available at a short distance with a corded power supply connection, according to the coordination with the district heating provider, the area is expected to be served from 2021. The heating and cooling needs will be supplied with up to at least 25% from renewable energy source.

In view of the major energy needs of the area, public network connections have been built out of core and main distribution networks. The connection for the electricity was built on 10 kV cable circuits, while natural gas was built from a high-medium pressure network.

Telecommunication

The landline telecommunication service provider of the planning site and the wider area is the Magyar Telekom Plc. Its built-up public space network, partly as a landline cable, partly laid in subsequent buildings, run on the pavements of streets demarcating the area of development, ensuring the fulfilment of the requirements.

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There is no device providing a public wireless service within the development area. Wireless service providers provide full coverage of their wireless services for the development site through their facilities in neighbouring areas.

4.2.6 Ownership

The entire area of the Northern Maintenance Depot has been subdivided into three parts according to the recently elaborated cultural development programme, thus creating the current plot structure. The development area designated for the Museum of Transport is the plot with Lot No. 38920/9. The area is owned by the Hungarian State, the property manager of the site is the Hungarian National Asset Management Inc. In the future, the property subject to the planning will be transferred to the asset management of The Hungarian Museum of Science, Technology and Transport. Property number 38217/2 is owned by the Hungarian State and also part of the design area, while its trustee is MÁV Zrt.

Among the two properties involved there is a site classified as a public space, which will function as a road for exploration in the future.

4.2.7 Related developments

The development of the Museum of Transport is part of a broader development programme. There are several developments in the area in the short and medium term that aim to renew the transitional zone of Budapest with the accommodation of cultural and recreational features.

Opera Workshop

The Hungarian State Opera and the Erkel Theatre Workshop House and Rehearsal Centre will also open in the area of the Northern Maintenance Depot next to the future Museum of Transport in the first half of 2019. The developments, like the Museum of Transport concept, are attracting visitors and serving the production and logistics needs associated with the life of the opera and the theatre. The Museum of Transport and the Opera House investment are organically connected to each other in respect to their transport connections.

Népliget - People's Park

Népliget is the biggest public park in Budapest, as well as the most unfavourably viewed one. The renewal of its green space – which is in a very poor and neglected condition - is particularly important at an urban level, and such renewal is long overdue. The complex rehabilitation of the park is currently under preparation, covering the development of the Ferencváros TC sports hall, the development of cultural and catering functions, and the development of green areas and transport. During the development of the park, special emphasis was placed on the development of connections with the surrounding areas, so the area has to be open to the Museum of Transport with a significant surface pedestrian connection.

The area of the Józsefvárosi Railway Station

With the renovation and extension of the headquarters of the former railway station, the House of Fates was realized, which is an interactive museum designed to commemorate the Hungarian victims of the Holocaust.

The aim of the Józsefváros Sportpálya Udvar development is to benefit from the existing but unused Józsefváros railway station and its environment, and to create modern urban green areas. In the former Józsefváros railway station development area, the 2019 Maccabi European Games will feature football and hockey matches, and after the Games, the MTK Football Academy's sport facilities will be located here.

There will also be a new handball hall at the location of the railway station, as well as a beach and thermal bath, built on thermal springs which are available almost everywhere in Budapest. The area is also suitable for accommodating the central coach station of the Budapest tram network, and office-institutional developments are expected on the Kőbányai út roadside.

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4.2.8 Building stock

In addition to some of the historic buildings of the former Northern Maintenance Depot, the Diesel Hall and the head office building, which were built in 1958-62, are determining components on the designated area for the Museum of Transport. These are expected to be the core of the future museum.

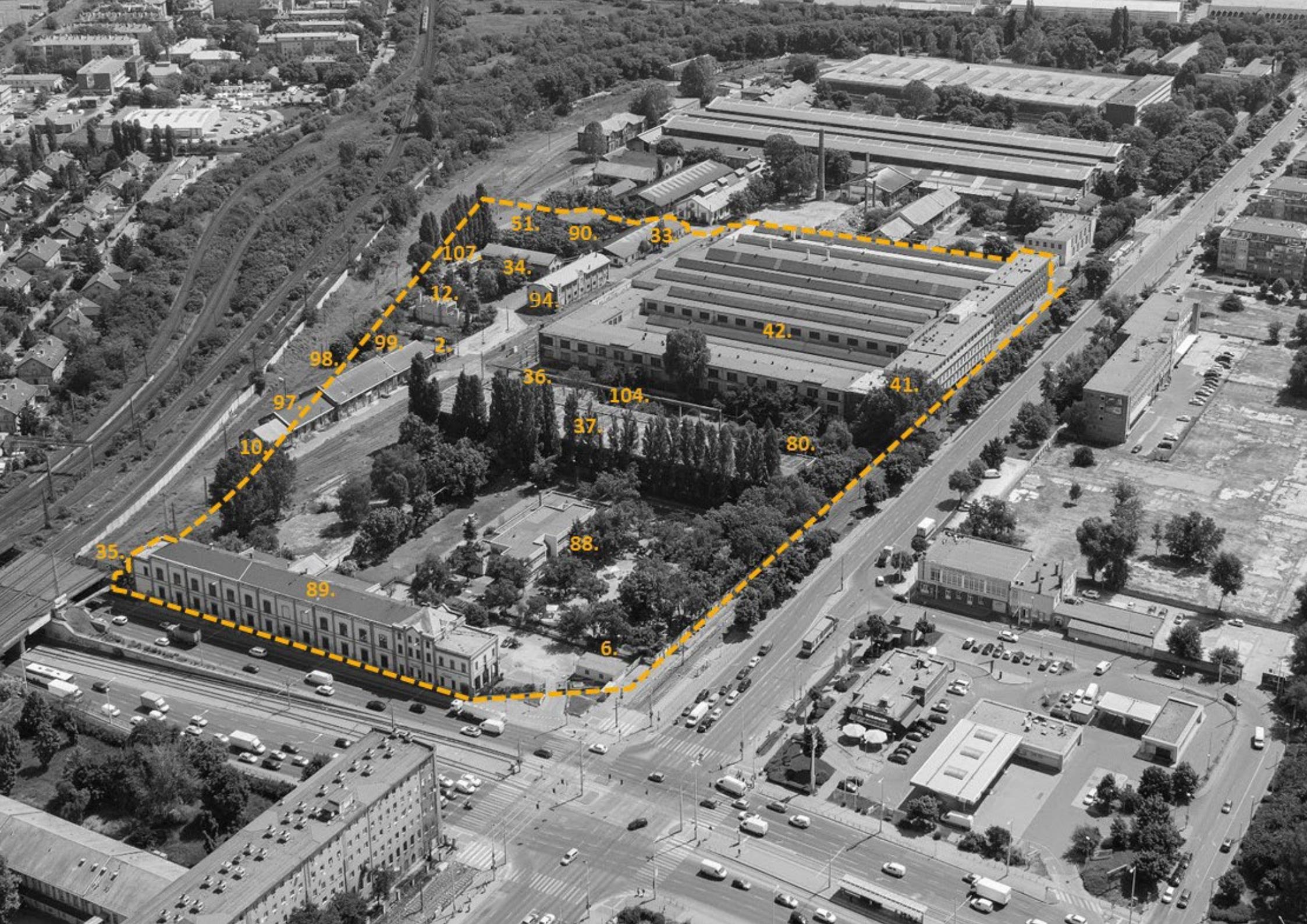
| Mark | Original name | Built in area [m ²] | No. Of floors | Footprint area [m ²] | Notes |
|------|---|---------------------------------|----------------|----------------------------------|-------|
| 2 | Service building (water supply, measuring room) | 25 | Groundfloor | 25 | |
| 6 | Warehouse building | 55 | Groundfloor | 55 | |
| 10 | Garage building | 205 | Groundfloor | 205 | |
| 12 | Warehouse building | 160 | Groundfloor +1 | 255 | |
| 33 | Warehouse, workshop (print, chem. Lab., Facility maintenance) | 860 | Groundfloor | 860 | |
| 34 | Workshop building (machine rep.) | 580 | Groundfloor | 580 | |
| 35 | Józsefváros freight traffic porta | 10 | Groundfloor | 10 | |

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| | | | | | |
|----|--|--------|-------------------------------|--------|---|
| 36 | Workshop building (acid and tin) | 110 | Groundfloor | 110 | |
| 37 | Workshop building (machine- and welding shop) | 3,580 | Groundfloor, groundfloor +1 | 4, 325 | <i>Hall building, side wing: groundfloor +1</i> |
| 41 | Office building (management head office) | 2,390 | Basement+ groundfloor +3 | 9,861 | <i>Under heritage protection</i> |
| 42 | Diesel Hall (locomotiv repair hall) | 19,870 | Groundfloor, groundfloor +1 | 22,005 | |
| 51 | Workshop building (locomotive-measuring house) | 735 | Groundfloor | 735 | |
| 80 | Workshop building (conveying washing tunnel) | 230 | Groundfloor | 230 | |
| 88 | Kindergarten | 785 | Groundfloor +1 | 1,180 | <i>Municipality institution</i> |
| 89 | Törekvés Cultural Centre | 1,525 | Basement+ groundfloor +1+roof | 3,470 | <i>Independent institution, under heritage protection</i> |
| 90 | Shelter | 420 | Basement+ groundfloor +1 | 1,140 | <i>Under heritage protection</i> |

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| | | | | |
|----------------------|--------------------|--------|-----------------------------|-------|
| 94 | Warehouse building | 485 | Basement+ groundfloor +1 | 1,450 |
| 97 | Warehouse building | 280 | Groundfloor | 280 |
| 98 | Warehouse building | 480 | Groundfloor | 480 |
| 99 | Warehouse building | 285 | Groundfloor | 285 |
| 104 | Store building | 15 | Groundfloor | 15 |
| Total built-in area: | | 33,085 | 47,556 | |



10, 35, 89, 97, 98, 99, 2, 12, 107, 51, 90, 33, 34, 94, 42, 36, 104, 37, 88, 80, 41, 6.



DEVELOPMENT AREA



LISTED BUILDINGS



MAJOR HALLS



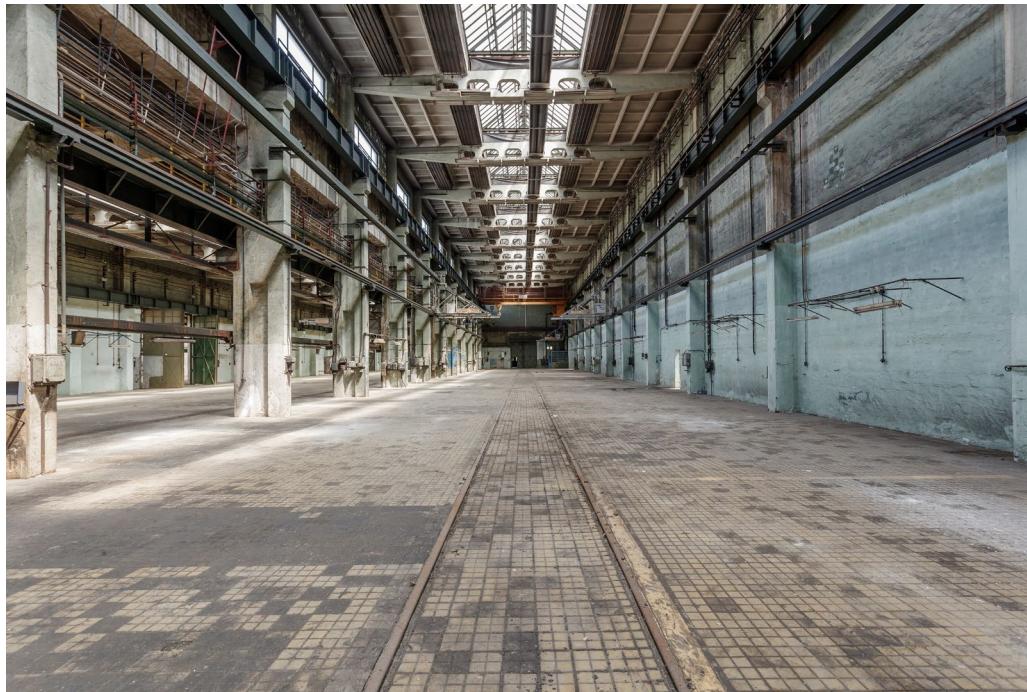
OTHER BUILDINGS



0

20

100 m



The Diesel Hall (42)

The most important and biggest building of the block is Diesel Hall No. 42 and the embedded head office No.41. Both of these buildings were built between 1959 and 1962 based on designs by the designer group of MÁV Railway Design Company. (*Architect designers: István Gundel, Tibor Rochlitz, György Kővári; structure designer: Ferenc Gerencsér, Gyula Kantz; geomechanics: Dezső Szathmári; technical building system designer: Ferenc Keszhelyi; energy supply: János Varga; technology: Ervin Mestyanek.*) Thanks to the extensive pre-production technology, construction was completed in 39 months with the first phase in 1961 while the final building complex was completed in 1962. The building complex demonstrates the features of socialist industrial architecture using modern tools after the revolution of 1956, where “heroic”, innovative solutions and possibly inferior quality constructions can be found alongside one another. (For details, please see Ernő Nagy - István Gundel - Ferenc Gerencsér - Pál Kézdy: A MÁV Északi Járműjavító Üzemi Vállalat motorkocsi javítóműhely tervezésének tapasztalatai [Experiences of designing the locomotive repair workshop of the MÁV Northern Maintenance Depot], in József Pál: A MÁV Vasúttervező Üzemi Vállalat szerepe a magyar vasúttervezés műszaki fejlődésében [The Role of MÁV Railway Design Company in the Technical Development of Hungarian Railway Design], 1964, 147-167.)

The Diesel Hall was used for the modern overhauling and upgrading of railway vehicles (locomotives and motor carriages). After it was constructed it was the country's state-of-the art workshop. On the northern side it is connected to the main railroad track network, and rail vehicles can be moved to the halls on the slider. In addition to the required 400 office jobs, the head office was primarily used to accommodate

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a locker and shower room with a capacity for 1,100 people, while the plant ambulance was also located here. The two buildings are essentially combined in one, some of the offices are facing the hall, and there is an airfield in the line of the locker room. The hall is served by the cargo route on the ground floor of the office building. The main layout size of the building complex is 160x145 m.

Diesel Hall No. 42 is a ground-floor, typically ferro-concrete structured hallway, consisting of nine parallel vessels of about 110 m in length. There are eight halls with a 15.5 m long span, while the slider's hallway was constructed with a 35 m span, and the building is complemented by a side wing on the north side. At the end of the halls C and D, a transverse structure was built for the motor test hall. Hall A is a multiple-floor hall, while workshops are located on the upper floor as well. The inner height of the halls varies from 8 to 15 m.

The halls feature their impressive look with their large dimensions, the typical pre-fabricated ferro-concrete beams, and the natural light coming through the monitor fanlights running alongside the halls. The halls are typically craned, the crane beams and the cranes are also striking features of the space.

Most of the halls were constructed with pre-fabricated, ferro-concrete beams and ferro-concrete slabs placed on ferro-concrete pillar frames. The 35 m span G-hall over the slider was fitted with a steel structure with riveted girder support, while the two-story hall A was made of a monolithic ferro-concrete frame. The reinforcing walls are also monolithic ferro-concrete structures, as well as the smaller detached workshops.

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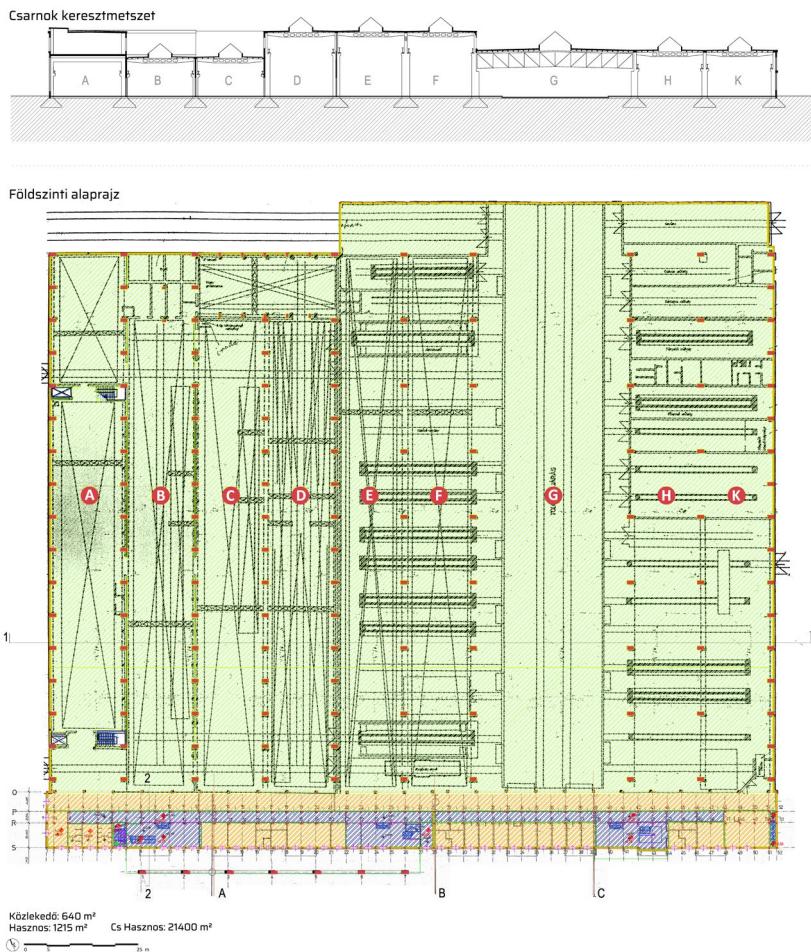


The pillar-frame positions were usually built at distances of 7.1m, however, in the spaces of the locomotives connected to the sliding pedestal, every second pillar was left out for the sufficient work space, and large master beams were used for redeeming them.

The floor levels of the halls are at the general level of the workshop track network, but the slider pedestal runs in deeper ditches. Flooring is concrete or ceramic floor covering.

The characteristic elements of the halls are the skylights under which a humidity ceiling was built but then later replaced by a movable shading canvas. The components of mechanical and electrical systems, the original radiant heating surfaces, the later equipment, the lighting fixtures and the various fittings are sharply marked.

The perimeter structures are ferro-concrete or brick structures, and the doors and windows are metal constructions. Roofing is probably made of rock wool insulation. From a thermal engineering point of view, the whole block can be said to be critical inadequate with respect to current regulations.



Head office building (41)

Head office No. 41 is a spectacular illustration of modern architecture. Today, this part of the complex is under heritage protection. The cellar + ground floor + 3-story wing running alongside the Kőbányai út (Kőbányai Street) is antithetically divided by the by the risalit-like locker room block on the fence line. This is crowned by the top-floor glazed loggia - originally with a terrace open to the council room. The main building block is covered with clinker-brick with square windows in steady rhythm. The dressing block is plastered, the apertures appear as compositions of vertical and horizontal bands. The dominant element of the façade is the seven V-shaped ferro-concrete pillars supporting the dressing block, the "sling pillars". Their patterns dominate the look of the building. Part of the composition is the characteristic entrance of the office.

The wing has three staircases; each being connected to another by level shifting. The design, detailing and fittings of staircases and lounges demonstrate the particular stylistic features of the era, such as the council room neighbourhood on the 3rd floor.

The wing is only partially provided with a basement. Its structure is underpinned by longitudinal monolithic ferro-concrete pylons with a density of 3.2 m, for which different slab structures - prefabricated ferro-concrete slabs or beams, bricklayers - have been added. The outer walls of the building are brick structures. Its windows are made of wood, the doors and the glass walls of the main aisles are made with locksmith's structures. Interior doors and windows are wooden structures. The pavements are typically cement linings, and Mettlach cement tiles, or red limestone has been used on the raised spaces. The offices have parquet floors.

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The building's most representative space was the board room and the connected premises: the flooring was made from red limestone and black hard PVC finish, its walls were painted in colour, harmonizing with the colour of the furniture. This ancient glow and elegant architectural design still can be perceived in the hall. The doors, lamps and ceiling speakers represent a distinctive value of heritage. The staircase entrances' glass walls, doors, and broken tile mosaic floors are also values to be preserved. Certain lamps, inscriptions, and built-in equipment, being characteristic design elements of the '60s, also represent a value of heritage. Although not necessarily on the spot, but the Museum should ensure the preservation of these elements.

The Törekvés Cultural Centre (89)

Törekvés Cultural Centre is one of the oldest public education institutions in the country. The building was built specifically for cultural purposes in the 1880s, serving the Maintenance Depot as a restaurant, a casino, a theatre room and a ballroom on the first floor. The building was restored in a relatively undemanding way in the 1980s, and even today it is primarily intended for cultural purposes. The building is under national protection.

Its special architecture and brickwork facade is linked to railway architecture but is well separated from the industrial buildings of the workshop. The typically ground floor + 1 story building is located on the edge of the property, and its entrances open from the courtyard. The building has separate public utility connections, and its own separate provisional boiler room.

Shelter (90)

A shelter was built for the workers of the Maintenance Depot behind the warehouses during the Cold War period. The entrance hall sluice chambers are connected to the cylindrical core of the cellar + ground floor + 1-story, fortress-type, three-story ferro-concrete structure. According to the original function of the building, it provided an air-raid shelter for approx. 6-700 people. The ground floor, i.e. the entrance level is the location of the command-control rooms (leaders point). The waiting rooms are located on the lower and upper floors. Because of the uniqueness and historical significance of the building, it is protected as a national monument.

The robust structure was built with thick monolithic ferro-concrete walls with air-pressure resistant steel doors, however, it is in a dilapidated condition: the ferro-concrete surfaces are corroded, the concrete coating is missing from large areas of the surfaces, the building has no precipitation protection, and the basement has high water levels. The building's mechanical equipment was damaged.



Workshop – machine and welding workshop (37)

The building complex has a large factory building consisting of a 20 m span, a 125 m long hall and the associated two-story wing, the ground floor of which is occupied by a workshop and a dressing room. It was built in the early 1960s. The craned pillars of the hall are of ferro-concrete structure; the roof structure consists of prefabricated ferro-concrete cassettes laid on steel grille beams. Its facade is largely glazed with glass fittings and locksmiths.

The building complex does not represent any significant architectural value, though, if necessary, some parts can be preserved.

Workshop building (Locomotive measuring house, 51)

The locomotive measuring house built in the early 1970s, is a ground-level ferro-concrete hall connected to the railroad of the Northern Maintenance Depot. Its structure was made of a prefabricated ferro-concrete pillar frame with ferro-concrete slab panels. Its facade is made of ferro-concrete panels, with steel structure windows, and a fitting glass band, with a metal rolling shutter at the entrance. The floor of the building is occupied by sunk-mounted technology accordingly.

Warehouse and workshop buildings (12, 33, 34, 94)

Various warehouse buildings are usually conventional brick structures. Buildings 34 and 94 partially retain the character of the former Maintenance Depot from the beginning of the 20th century. The buildings are mostly on the ground floor, building 94 is a cellar + ground floor + 1 story.

The buildings do not represent any significant architectural value and their technical condition has deteriorated.



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Warehouse and service buildings (2, 35, 10, 97, 98, 99)

The various ground floor buildings are usually brick structures. The 10-97-98-99 warehouse buildings preserve the former character of the Maintenance Depot, the characteristic features of the railway architecture, and the plaster-brick architecture and hall structure. The area of the listed buildings is crossed by the boundaries set by the Regulatory Plan, so their demolition is necessary.

The buildings do not represent a significant architectural value and their technical condition has deteriorated. Consequently, these buildings will be demolished during the planning period.

Warehouse and workshop buildings (6, 36, 80)

The various ground floor buildings are usually traditional brick structures with ferro-concrete slabs. The buildings were built after World War II. Bogie washer No. 80 has a similar architectural style to the 37th hall building.

The buildings do not represent a significant architectural value and their technical condition has deteriorated.

Kindergarten (88)

The kindergarten in the area is an institution of Budapest Distr. X. local government. The building has a fenced off plot of 7,400 m². Within the framework of the development project, the institution will be moved to a new location, the building will be demolished and the registration of the property will cease to be separate.

The partly ground floor, partly ground floor + 1-story building was built in the late 1970s with the widespread UNIVÁZ prefabricated ferro-concrete frame structure, facade ferro-concrete panels and wooden window frames. The building has separate public utility connections and its own thermal centre. It does not represent any significant architectural value.

[5 DESIGN PROGRAMME]

5.1 MAIN ASPECTS

5.1.1 The competition area

The design area covers Budapest Land Registry number plot 38920/9, the property providing location for the Museum of Transport, as well as the plot under Land Registry number 38917/2, the location for the railway station. The properties bordering the two afore-mentioned plots, are mostly public spaces, and may be slightly affected due to the location of transport facilities and utilities listed in the design programme, but their conceptional in-depth transformation does not form part of the project.

5.1.2 Urban planning regulations

The urban planning for the properties under number 38920/9 assigned for the placement of the Museum is currently being amended. The following specifications are to be considered during the competition:

- The area of the property is slightly reduced by the new public road constructed parallel to the railway track. (For the proposed line, see Annex 6.1).
- Buildings and structures can be installed freely.
- In the north-south direction between the planned railway station and the junction of Könyves Kálmán körút (Könyves Kálmán Boulevard) - Kőbányai út (Kőbányai Road) and along Kőbányai út to the east-west east-west, an unrestricted pedestrian crossing must be built for public safety.
- The road entry permission to the plot of the Museum can be granted only from the newly regulated public road, or from the private road under Land Registry number 38920/8 on the side of the Opera Workshop House.

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- The construction site is not restricted to the plot, but it is necessary to consider the location of the buildings under heritage protection and the location of the valuable plants.
- Construction parameters of the property are as follows:

| plot area | | 70,332 m ² |
|---|-------------------------------------|------------------------|
| Maximum build-up above ground level, proportion and measure | 55% | 38,683 m ² |
| Maximum build-up below ground level, proportion and measure | 65% | 45,716 m ² |
| Minimum green surface, proportion and measure | 20% | 14,066 m ² |
| Maximum ground level, proportion and measure | 2.00 m ² /m ² | 140,660 m ² |
| Maximum Building Height | 0.0 m | 21.0 m |

For land plot number 38917/2 intended to accommodate a railway stop, the following requirements are valid:

- The rail track plot is to be slightly increased due to road regulations. (For the proposed line, see Annex 6.1).
- Buildings and structures can be installed freely.
- Construction parameters of the property are as follows:

| Plot area | | 32,548 m² |
|---|-------------------------------------|-----------------------------|
| Maximum build-up above ground level, proportion and measure | 5% | 1,627 m ² |
| Maximum build-up below ground level, proportion and measure | 20% | 6,510 m ² |
| Minimum green surface, proportion and measure | 0% | 0 m ² |
| Maximum ground level, proportion and measure | 0.10 m ² /m ² | 3,255 m ² |
| Maximum Building Height | 3.0 m | 12.0 m |

5.1.3 General requirements

The Tender issuer expects the technical solutions of the submitted works to comply with the applicable Hungarian legislation and the relevant standards. If the applicant makes a different proposal, it must be duly justified.

The designer must develop the implementation of the entire museum complex, the most favourable layout of each functional element, taking into account the surrounding urban connections. Architectural solutions must respect the aspects of everyday use and sustainable operation.

The building complex of the Museum must be given a specific character through its architectural and landscape formation, and by building on the existing architectural values using contemporary architectural solutions deliver the institution's message and become an attractive community destination.

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The designer is expected by the Tender issuer to establish which of the existing buildings, parts of buildings, public utilities or other infrastructure elements can be utilized, thus preserving the memories and the historical continuity of the area.

In addition, the designer must provide a solution that allows the successful utilization and economic operation of the former Northern Maintenance Depot buildings, while providing openness to the cultural needs of residents of the surrounding area. Thus, the area may partially come back to be used by urban communities.

5.1.4 Urban planning tasks

- Integrating the area into the urban fabric both functionally and visually;
- finding connections with surrounding areas;
- solving pedestrian accessibility, selecting a central entrance position;
- defining of open spaces - green or clad, open or closed;
- determining landscape and architectural features, searching for characteristic elements;
- ensuring the creation of a coherent and engaging design, while asserting the notion that “the experience does not start at the land border”



5.1.5 Architectural and technical expectations

Quality and approach

- Creation of an exemplary museum complex meeting the highest international standards;
- integration-oriented design approach encompassing buildings, public space and the urban environment;
- integration-oriented approach with respect to the functions of the institution and that of the neighbouring area;
- focus on rigorous architectural solutions of lasting value;
- focus on sustainability considerations regardless of predetermined technological specifications;
- innovative utilization of the potentials inherent in the industrial and built heritage of the site.

Expenses

- Cost-efficient approach in building and later operation of the complex;
- focus on economical solutions while adhering to quality design.

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One of the primary considerations in designing the museum complex, and consequently in assessing applications, is cost-efficiency and the exploration of economical architectural and technical solutions. The previously described factors affect both the design of the museum complex and its efficient operation.

Buildings and structures

- Preserving the aesthetics of remaining building structures;
- utilizing the remaining structures in accordance with up-to-date technical requirements;
- identifying innovative, forward-looking solutions for new constructions;
- identifying solutions for the coexistence of old and new structures;
- taking into account load capacity, fire protection and insulation considerations during design.

Design aspects of usage and quality of materials

- use of building materials produced with low environmental impact and energy consumption;
- use of durable materials of premium quality;
- use of high-wear, colour fixer;
- use of recycled materials;
- use of building materials produced in the region;
- respect for the original materials used for buildings under heritage protection.

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HVAC systems, building energetics

It is expected that building energetics will be prepared in accordance with the requirements of the museum environment and the sustainable operation aspects, as well as with the regulations.

The use of modern, “smart” solutions is an important aspect in the field of energy systems. When designing energy systems, the possibility of application of smart solutions for operational tasks, particularly in the field of consumption measurements, network loads, feedback and interventions related to malfunctions have to be considered.

During the design contest, we expect proposals for the use of alternative energy sources such as:

- Geothermal energy;
- Solar energy utilization with solar cell or solar thermal collector;
- Application of heat pump systems;
- Biomass-based heat production, supplying the district heating network.

Legislation on energy solutions for buildings does not apply to buildings under heritage protection, local protected buildings and building elements where compliance with the minimum energy performance requirements would result in a change of heritage value. Since the outer facade insulation of the Head Office Building conflicts with the aspects of the heritage protection, the requirements are not applied. External façade insulation should be avoided.

The Diesel Hall is not under heritage protection, therefore, in the case of renovation, the building energy values specified by law must be respected.

It is also a legal requirement that the proportion of renewable energy used in buildings should reach 25%. This is not mandatory for existing buildings.

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In the renovation and construction of the new building, the following heat transfer values should be achieved according to the Hungarian legislation in force:

| Building structure | U (W/m ² K) |
|---|--------------------------------------|
| External wall | 0.24 (suggestion of the Museum: 0.2) |
| Flat roof | 0.17 |
| Attic slab | 0.17 |
| Bottom slab over basement without heating | 0.26 |
| External glass wall, curtain wall | 1.4 |

In the table it has been emphasized that the floor requirement is only required for new constructions, i.e. the floor of the existing hall building does not have to be subsequently insulated.

Acoustics

In the exhibition halls and other high-capacity public spaces, special attention is required to take on esthetical, high-quality acoustic solutions to maximize sound absorption and minimize reverberation time. In workplaces (offices, libraries, archives), the mitigation of stepping noise between floors is an important consideration.

Lighting (exhibition areas)

The natural lighting conditions in the exhibition halls must be limited to the requirements of modern exhibition technology and art protection. The artificial illumination network is to be designed flexibly, must be adjustable and able to accommodate luminaires with adjustable luminous intensity.

Health and comfort

Creating the right working conditions for workers in the building to meet strict requirements is a priority. The integration of natural systems (natural ventilation and lighting) is one of the basic requirements for proper indoor comfort. The aim is to create the right temperature, acoustics and visual comfort.

Water management

Priority will be given to applications that suggest rain and / or greywater utilization. Another important aspect is minimizing rainwater emissions from the planned facility. A positive assessment is given of the proposal that contains sustainable drainage solutions, thus reducing the rainwater load. An important point in designing is the search for and use of water-saving solutions.

Other technical aspects

- The Tender issuer expects innovative ideas to solve the shading, which requires special attention in the exhibition space;
- In the case of exhibition halls and storages, the Tender issuer is waiting for a proposal to solve the thermal insulation of the floor with a high load capacity bearing work of art objects;
- Innovative, transport and landscape architectural proposals related to the development of transport are preferred concerning the creation of free spaces.

5.1.6 Ecology

There are relatively few and poor quality trees in the design area. It is recommended to keep valuable, individual trees, but at the same time emphasis should be placed on increasing the ecological value and biological activity of the area and on creating valuable green areas.

5.1.7 Management

In order to achieve efficient operations and management, it is indispensable to use modern authorization, measurement and feedback systems, which must be taken into consideration during design. In developing authorization systems, the specific needs of the accommodation service must be taken into account. (Different services for each room type, how to use the extra privileges included in the accommodation, etc.). An important operational element is the logistic supply of the area, which is proposed will be provided by a separate logistic centre, thus strengthening the pedestrian-friendly design of the site. Smart solutions also help in organizing logistics, which need to be considered when designing the systems. Smart solutions can also assist the operator in the operation of the security system, in the form of access control, surveillance and monitoring systems, etc.

5.1.8 Sustainability, environmental awareness

In the design and operation of the new exhibition site of the Museum of Transport, the sustainability of the investment is essential in the following respects:

- Environmental sustainability - use of environment-friendly building materials, minimizing energy needs, minimizing light emissions, reducing waste, recycling waste;
- reduce energy consumption passively, with architectural tools (shading, ventilation, windscreens, windproof shell design, etc.);
- energy-saving cultivation, sprinkling and treatment of green surfaces;

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- waste management and possible recycling, taking into account selective collection;
- illuminating external areas and facades with energy-saving solutions;
- positive reception of green roofs and solar panels;
- use of rating systems (according to the requirements of the appendix to be issued by the Tender Issuer in section 2 of the tender);
- social sustainability - the local community can become a community-building force in the area; it is hoped that the development eliminates the functional and connectivity gaps;
- cost-effective, sustainable operation;
- commercial functions, partial self-sustainability by operation as a venue.

5.1.9 Accessibility

Hungarian regulations concerning accessibility must be observed during the design process. The building complex should be built to accommodate the needs of disabled people, according to the relevant requirements. Access to the buildings and unhindered movement within buildings must be ensured for people with disabilities and reduced mobility.

5.1.10 Key aspects for designing spaces:

in-house connections: it is expedient to maintain the outside rail connection and the in-house rail track system, which would determine the structure of the new complex according to the limitations of these track systems;

- existing buildings: buildings under heritage protection, halls that could be utilized and especially Diesel Hall No. 42. should be treated as given characteristics during the deployment process.

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- the tendering authority expects proposals regarding the possibility of making the Diesel Hall's most attractive architectural spaces (pusher bench, workshops) accessible to visitors;
- the aim of the competition: optimizing the ratio of old and new buildings and their functions;
- another important aspect is the development of the connection between vintage services and the building complex.

Main questions regarding deployment that should be addressed by applicants are:

- location of the visitor entrance;
- deployment of main functional units;
- design, location and operation of open spaces;
- assignment of parking spaces.

5.1.11 Potential utilization of existing buildings

The fundamental decision of the development plan proposals is related to the question of the utilization or demolition of existing building stock. Basically, the following can be recorded:

- the detailed design should determine which existing building parts can be utilized according to the new functions. The decision must take into account the layout-functional features of the buildings, the supporting structures and the physical characteristics of the buildings. Decisions may foresee the complete or partial dismantling of buildings, the reconstruction of their structures, and the upgrading or the complete replacement of their constituent structures for optimum solutions;
- Head Office Building No. 41 under heritage protection offers a favourable opportunity to accommodate office spaces, data store rooms and archives, for which the major parameters of the building meet. It should be noted, however, that the structures of the building cannot

meet the requirements of the archives or even the office load requirements without significant reinforcement or radical reconstruction. The difficulty from a physical point of view is that changing the façade of a building under heritage protection is prohibited; it is necessary to create archives with strict air status parameters behind the façade with low thermal insulation, facing south;

- Diesel Hall No. 42 is one of the most important utilizable parts of the complex. The entire hall complex, with a useful area of around 20,000 m², is suitable for both exhibition and storage functions. The existing railway connection and the transfer table make it easy to transport and move rail vehicles. The attractive appearance of the halls, the typical solutions of industrial architecture of the 1960s can give a distinctive backdrop to the exhibition spaces or the visitable storages. The in-situ preservation of building parts, structures, coatings, and apparels requires a specific architectural approach that is closely related to the practical issues of preservation and restoration. The large airspace of the building and the unfavourable building physics make it necessary to make structural changes and construct complex HVAC systems as well: due to the need for strict air status parameters in the exhibition halls and storages in the Museum, significant improvements must be made to the thermal characteristics of the boundary structures and the necessary HVAC systems must be built up. While the supporting structures of the halls are expected to be in good condition and their bearing capacity complies with today's conditions, the necessary reconstructions may also require interventions in supporting structures. It is a significant advantage that the floor level of hall „A” was made for heavy duty workshops (10 kN / m² payload). The specially designed space of the transfer table and its associated halls has constraints: the slope of the transfer table and the row of tracks and fitting shafts on the floor of the hall, the system of large ventilation ducts installed in the floor. Specific considerations need to be made to design the fire protection concept of spaces and boundary structures. It is desirable to preserve a substantial part of the hall, and to modify and partially dismantle it, this is question of design;
- due to heritage protection, it is necessary to preserve Head Office Building No. 89, the Törekvés Cultural Centre. No. 89 - which is not part of the development programme;

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- the restoration – mainly waterproofing – and utilization of Shelter No. 90 is difficult to fit into the framework of the Museum's basic programme but as a curiosity, it definitely enriches the visitor's experience. It is necessary to take the monumental aspects into account in respect to the preservation of the building and its renovation;
- the well-preserved single-yard hall of the hall No. 37 can be used for the Museum's storing and exhibition functions, and the extension wing can be confined to the Museum's programmes with limitations. Preservation or dismantling is a question of design;
- the hall of workshop No. 51 (locomotive measure house) is in good condition so it can be inserted into the Museum's programme, but the design of the floor of the building limits its use. Preservation or dismantling is a question of design;
- the workshops and warehouses No. 2., 6., 12., 33., 35., 36., 80. have no value, they can be demolished;
- The demolishing of buildings No. 10., 97., 98., 99. are required for forming the plot. They are considered non-existent for the application;
- Buildings No. 34. and 94. may be worth preserving due to their character, their technical condition is poor. Preservation or restoration is a question of design;
- Kindergarten No. 88. is to be demolished after moving out. It cannot be inserted into the programme of the Museum, its preservation is not desired.



DEVELOPMENT AREA



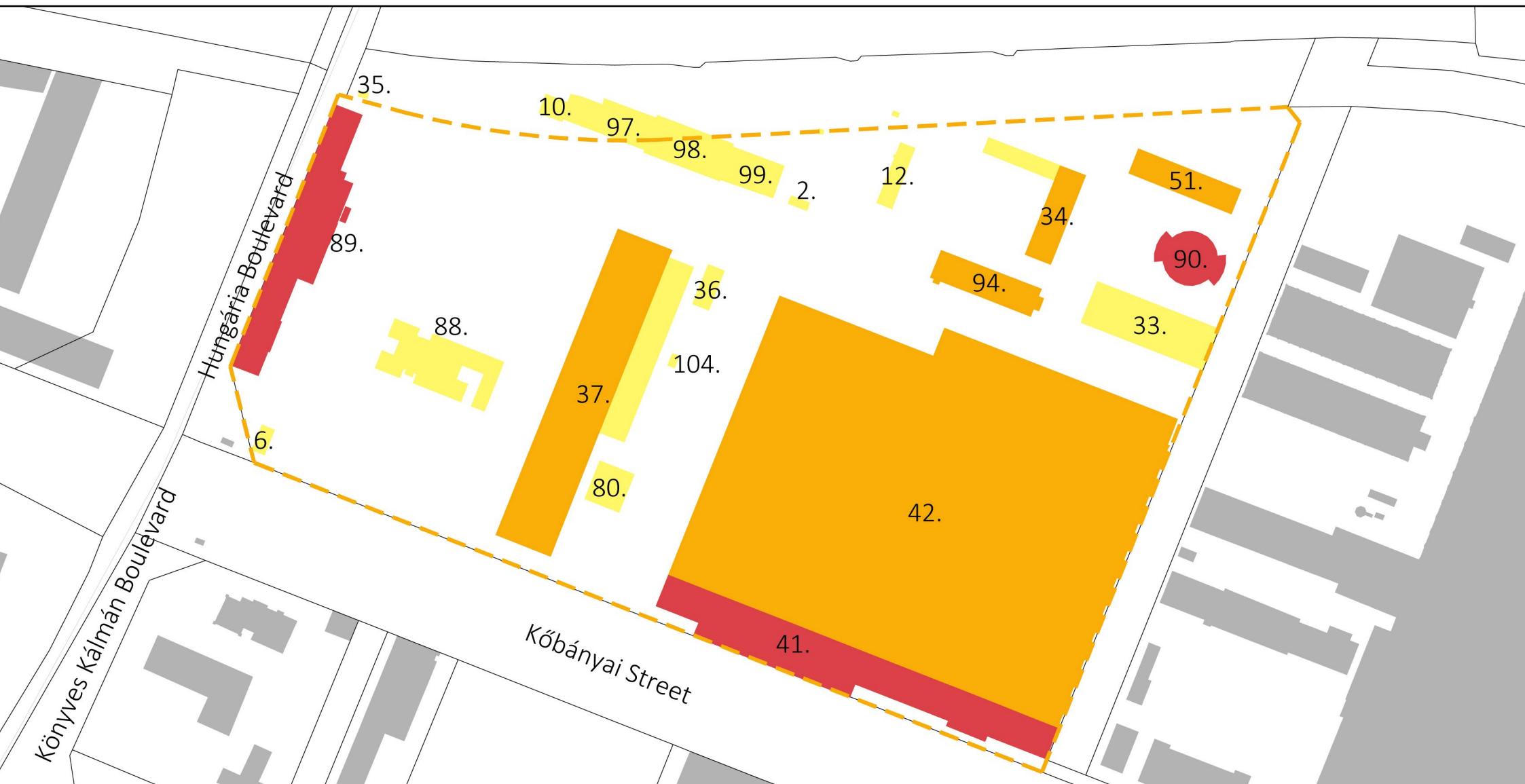
LISTED BUILDINGS



TO BE CONSIDERED



TO BE DEMOLISHED



0 20 100 m

5.2 BUILDING COMPLEX OF THE MUSEUM

5.2.1 The collection

Currently the Museum has a collection of more than 21,000 items, and according to the collection development strategy of the institution this number will increase in the future. Almost 3,000 of these items will be on display in the planned new permanent exhibition, the rest will be placed in visitable storages that can be open to guests.

The Museum will maintain the network of its external exhibitions: parts of its collection can be seen at other locations, – shipping and aviation history exhibitions will not be located in the new museum complex.

The collection groups of the Museum of Transport:

- Collection of roads, buildings and other items;
- Collection of unpowered, not track-based road vehicles and other objects;
- Collection of powered, not track-based road vehicles and other objects;
- Collection of railway tracks, sub- and superstructures, other facilities;
- Collection of railway hauling vehicles and their accessories;
- Collection of wagons, other towed vehicles and equipment;
- Collection of railway telecommunication and safety equipment;
- Collection of other railway equipment and findings;
- Collection of urban transport roads, tracks, facilities and transport equipment;



NEW HUNGARIAN MUSEUM OF TRANSPORT LARGE OBJECTS OF THE COLLECTION

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- Inland, maritime and river-sea transport collection;
- Other means of transport and their accessories;
- Collection of transport artefacts (relics) of general interest;
- Numismatic collection;
- Fine arts collection.

5.2.2 Visitors

The annual number of visitors is expected to be 300 to 350 thousand people. Reference peak load is 3- 4,000 visitors /day. On the occasion of openings and other special events, the Museum expects higher visitor numbers, approaching 10,000 to 15,000 people a day.. Expected duration of a single visit is 3.5 to 4 hours on site.

Main target groups are:

- school classes;
- families with children;
- youth and young adults;
- transportation enthusiasts;
- tourists visiting Budapest;
- researchers.

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5.2.3 Main functional aspects

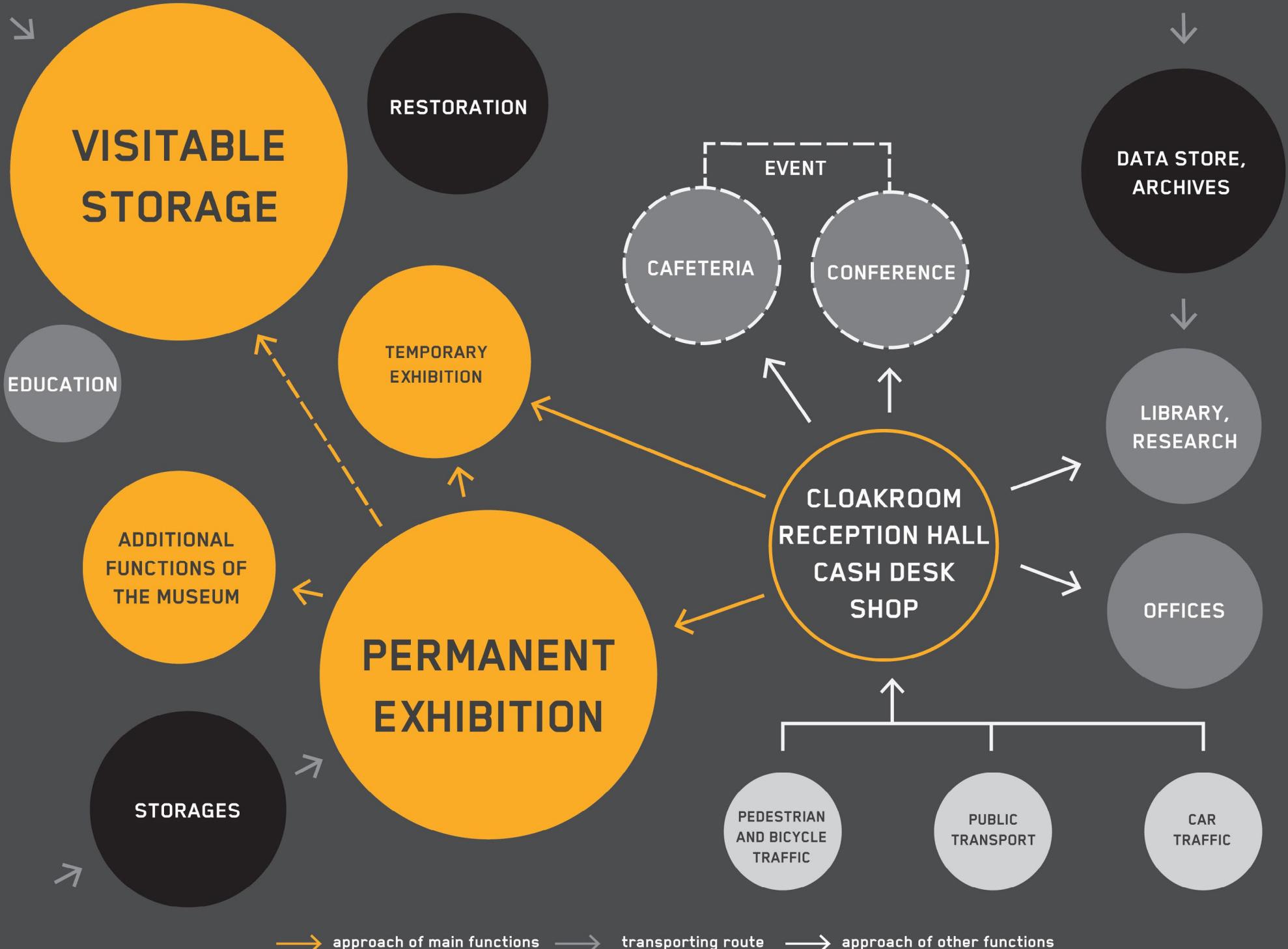
The planned Museum and exhibition must serve the purposes of displaying, storing and also the future expansion of the current collections.

Visitors first arrive at the open visitor area where they can purchase tickets to enter the enclosed areas or go on to visit the museum areas that are accessible for everybody without a ticket such as offices, library and the event areas. The exhibition and the accompanying show will be located inside the closed area that are open for ticket holders only. Elements that serve the functional and logistics needs of the museum, storages and the restoration centre will form a separate unit.

The task of the designer is to properly place the buildings containing the main functional units, while creating functional connections between and within the units. The aim is the rational use of space.

Main units of the whole area:

| function unit | net ground space |
|--|-------------------------------------|
| Visitor areas, conference hall, cafe | approx. 2 800 m ² |
| Exhibition areas | approx. 13 300 m ² |
| Storages | approx. 11 900 m ² |
| Document archives, library | approx. 4 500 m ² |
| Offices, service areas | approx. 1 600 m ² |
| Restoration centre | approx. 2 700 m ² |
| Total functional area | approx. 36 800 m² |
| Open air exhibition, roads, car parks, green areas | |



5.2.4 Visitor areas

Apart from receiving museum visitors, visitor areas will also serve as locations for individual events and for catering, and commerce. The styling of these areas will lend a specific character to the institution's image. The visitor hall forms an integral part of the exhibition areas, in an ideal case it can serve as an entrance to employee areas, to the archives and to the library.

Requirements about support structures and architectural physical aspects of the visitor areas are as usual.

The main task of the designer is to assign buildings/locations for the main functional units described below, create functional connections among them, and to provide connections within these units. Rational use of available spaces should be a priority.

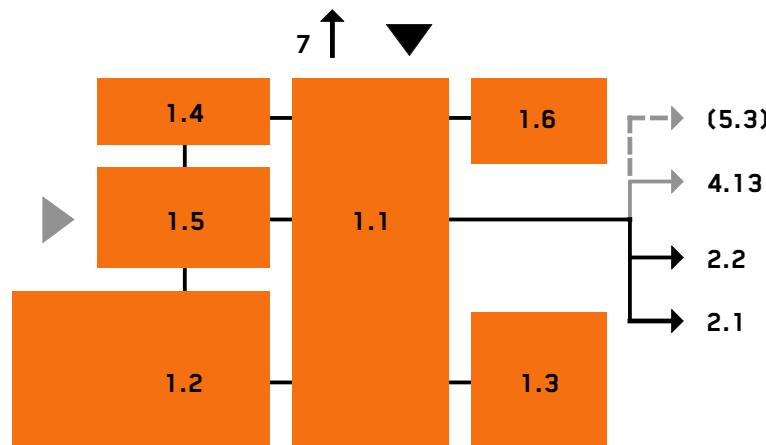
Areas for children-friendly programmes of the museum should offer the greatest degree of flexibility and versatility, so that educational programmes can be arranged for different age groups. These are the start and finish points of educational programmes, school groups arrive with bags that can be stored here during the time these groups are in the exhibition area or taking part in an educational programme in the playing room. The planned educational and playing room function consists of storage (cloakroom, educational materials), flexible zones for programmes for different age groups and it is an important location for receiving organized kindergarten and school groups and their departure.

One of the aims of the museum is to serve the function of a knowledge centre as well as an event location. The conference hall accommodating 450 people will provide a good location for professional conferences about transportation and other themes. The large capacity conference hall can fill a vital need in Budapest. The Contracting Authority expects proposals for using mobile walls and thus creating two smaller halls which could be used in a wide range of events. A restaurant serving 200 guests and a cafe which can serve as a social space could be connected to the visitor entrance hall and the conference room.

The museum shop should be able to offer unique, transportation-themed gifts, and household objects and books that are related to the exhibition. Having a high-quality offering can attract transportation enthusiasts.

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| function | net ground space | estimated gross horizontal space |
|---|----------------------------|----------------------------------|
| 1.1 reception hall, service areas | 1,000 m² | |
| 1.2 conference hall for 450 people | 700 m² | |
| 1.3 museum pedagogy and playhouse | 400 m² | |
| 1.4 cafe, shop | 200 m² | |
| 1.5 restaurant and kitchen (200 portions) | 300 m² | |
| 1.6 public areas, service areas | 200 m² | |
| Total: | 2 800 m² | 3,450 m² |



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5.2.5 Exhibition areas

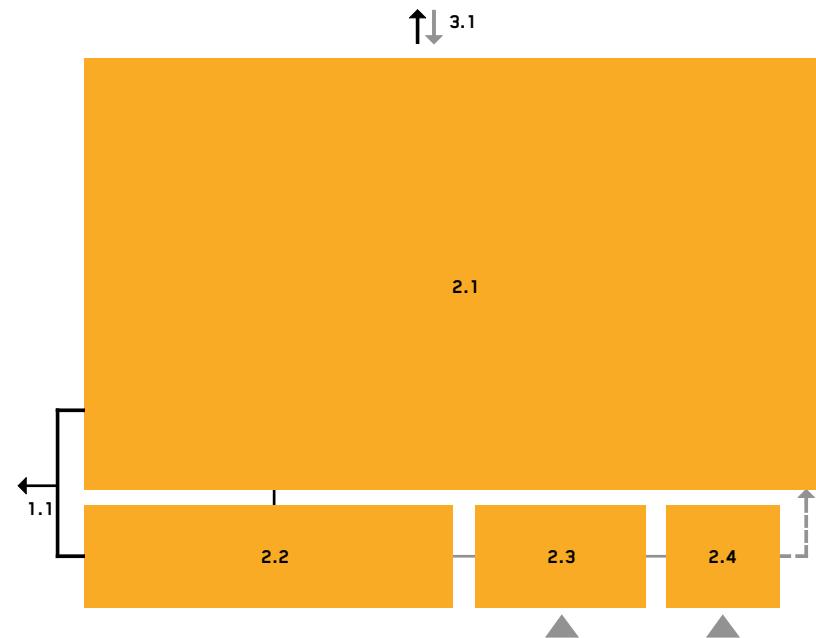
The main exhibition area shows the history of the development of transportation, divided into four periods, focusing mainly on the machinery used in public transportation and their effects on people's changing lifestyles. The most valuable exhibits are displayed in the exhibition halls. The aim of the exhibition is that it may give visitors an experience through the technical displays during the almost 4 hours of the visitor trail programme. In order to ensure a good visitor experience, it is important to create an attractive connection between the exhibition itself and the storage buildings that are open to visitors. As most of the items are quite large in size, exhibition areas are mainly on the ground floor.

Load capacity of the exhibition areas where large vehicles are displayed and of the areas where these large objects are moved is 50,0 kN/m² and they need individual sizing.

Museum air requirements for permanent and temporary exhibition areas are 20-25 °C temperature and 48 +/- 5% humidity.

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| function | net ground space | estimated gross level space |
|--------------------------|-----------------------------|-----------------------------|
| 2.1 permanent exhibition | 11,000 m² | |
| 2.2 temporary exhibition | 1,300 m² | |
| 2.3 temporary storage | 600 m² | |
| 2.4 installation storage | 400 m² | |
| Total: | 13 300 m² | 14,400 m² |



Storyline

The permanent exhibition of the new Museum of Transport will display the history of Hungarian transportation based on social chronology from the early reform period that brought the first innovations up to recent times. Instead of displaying the vehicles in groups according to their types, it might be more expressive to show complex transportation events, situations, dilemmas and solutions. This will make it possible for progress in a particular period, and the desire for progress to be shown in an expressive, approachable context, so that visitors see not only the displayed items, but also the stories behind them, the opportunities of a particular era, the society of the time and the people as well.

The exhibition will show the means of transportation used by society, with public transportation as the main focus. The aim is not to show and emphasize the general theme but, moreover, the main thread should follow Hungarian history and the domestic evolution of transportation (in its natural international environment).

The largest and most spectacular items of the exhibition are the vehicles that defined Hungarian transportation and society. Such iconic object of Budapest the yellow trams, while trains are more representative of the country. The importance of city and rail transport is also to be highlighted, as both had a decisive effect on personal and social relations. Consequently, the emphasis of the exhibition is on displaying the history of vehicles and services that were used in regular day-to-day transportation.

Besides showing the history of domestic innovation, the exhibition will display the vision for the future of Hungarian transportation and will feature ideas for its development. By looking into the future of public transport, the exhibition will transfer crucial message of sustainability, the use of urban space and responsible thinking.

Installation

Innovation is one of the main messages for the new Museum of Transport: the driving force behind the science of engineering and transportation is the ability for renewal that characterized transportation in every era. In this regard, the exhibition can be refreshed periodically with individual installations, scenic elements, and digital content that can be updated or changed periodically. The content is processed in an up-to-date manner and the exhibition evokes history using certain situations (installations, interiors, audio-visual devices, etc.) and brings the displayed items closer to visitors by making the attached message more vivid and articulate. The exhibition will convey information to visitors through its digital content and accompanying programmes (museum pedagogy) using edutainment elements.

It is important that exhibited vehicles can be physically occupied and touched by visitors, thus allowing them to become familiar with how these vehicles were operated while giving them the opportunity to use the museum as a social space.

Museum visitors will be part of a historical journey during the three-hour visitor trail, and experience a pleasant, mainly quiet and positive, but dynamically dramatized and exciting environment.

Syllabus

A detailed script will be written about the contents of the exhibition. According to the preliminary concept, the theme would be divided into four chronological units and each of these will have diverse adaptations of the role that transportation played in society during that specific era. Theme units would follow each other in succession along the visitor trail.

Theme units are described below:

- T1 theme: the period between 1800 and 1920, from the early days of public transportation through the turn of the century up to World War I, showing the exponential development of this era;
- T2 theme: the period between 1920 and 1945, showing the rapid development between the two world wars and the exceptional era of innovation;
- T3 theme: the period between 1945 and 1970, showing the transformation after political and social changes, with emphasis on the revolutionary period of 1956;
- T4 theme: the period after 1970, showing the legacy of the socialist era, the transformation after the fall of communism, and challenges of the future.

These four themes would occupy approximately the same amount of space of about 2,500-2,500 m², with 800 m² lead-up and 200 m² exit areas.

Exhibition areas

In an ideal scenario the design of the exhibition areas will create harmony not only among the exhibition and its large sized items but also with the areas of the current building and its elements, if the rail technology and industrial objects of the 60's fit the narrative of the exhibition organically. The design of the spaces must fulfil the highest technological requirements for museum environments, creating flexible opportunities to display connections between objects of different size magnitudes, genres and items of art, as well as for displaying these individually. Unhindered movement for visitors must also be guaranteed.

The permanent and periodic exhibition area must fulfill the protection requirements for exhibited items. . These strict regulations primarily concern ventilation, humidity and temperature regarding the HVAC systems. Requirements for the placement and moving-in of large size pieces (rail and road vehicles) have to be taken into account early, even when assigning exhibition areas. This requires a unique design of the support structures and of the applied technology.

5.2.6 Storage

Nowadays, the preservation and storage of artefacts are of paramount importance in the museum profession. In general, renewed museums provide state-of-the-art storage conditions in order to preserve the collections' cultural assets for the near as well as the distant future. This makes it possible for future generations to enjoy these objects.

Warehousing will be one of the important tasks of the new Museum of Transport to be established in the former Northern Maintenance Depot. The main goal is to create a periodically visitable storage with floor space of about 12,000 m². The collection of the Museum of Transport will be placed in several separate storages designed for the various groups of artefacts. Accordingly, there is a need for storage of the horse-drawn vehicles, to be designed with a reasonable compactness ensuring visibility. Vehicles will be showcased in a separate room, with a multi-storey, pallet racking system. The clothing, furniture, model and numismatic collections will be handled separately. Furthermore, other non-exhibited cultural items, including transport-related objects, that may be of interest to visitors, should be placed in a separate room, in a racking system.

Larger modes of transport, e.g. the railway hauling and towed vehicles, railway electric motor and trailer coaches, articulated wagons, underground and commuter railway coaches, solo and articulated buses should be placed in a hall(s) with thousands of square metres of floor area, provided with track links and rails, in compliance with the requirements of the artefact environment parameters. The current artefact environment specifications are as follows:

items of art made of composite materials:

- temperature: 22 ± 3 °C (24 hours)
- relative humidity: RH 50 ± 5% (24 hours)

items made mostly of metals:

- temperature: 22 ± 3 °C (24 hours)
- relative humidity: RH 48 ± 5% (24 hours)

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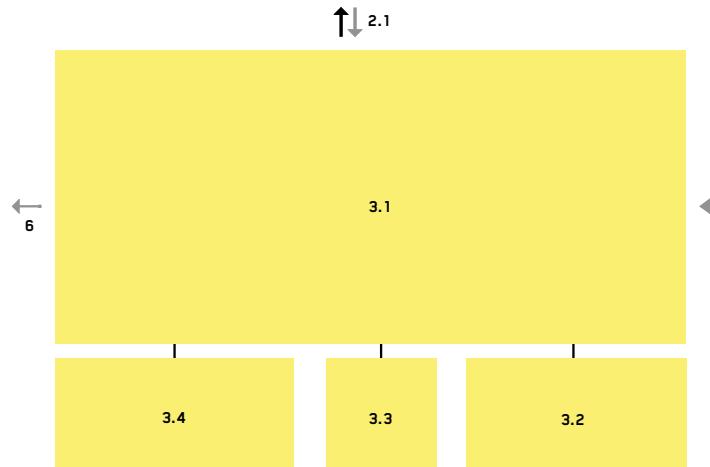
The storage area requires different solutions according to the type of the collection. In addition to the proper storage, it is also required that storage facilities are able to serve as temporary exhibit areas, so some of the storages can be opened to visitors periodically. Properly planned visitor trails could allow occasional extensions to the main exhibition programme. It is desirable that the storages are connected to the exhibition areas, and ideally that they have direct connections to restauration workshops too. Railroad vehicles naturally can best be stored on rails, the currently used pusher bench is the ideal tool for moving these vehicles.

Load capacity of the storage areas where large vehicles are displayed and of the areas where these large objects are moved is 50. 0 kN/m² and they need individual sizing.

Museum air requirements for storage areas are 20 +/-4 °C temperature and 48-50% humidity. Some of the storage areas need to be dust-free and require extra protection.

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| function | net ground space | estimated gross level space |
|---|-----------------------------|-----------------------------|
| 3.1 storage for large vehicles | 8,800 m² | |
| 3.2 storage for cars | 1,200 m² | |
| 3.3 storage for bicycles and motorbikes | 580 m² | |
| 3.4 other storages | 1,300 m² | |
| Total: | 11 880 m² | 13,200 m² |



5.2.7 Data storage, document archives and library

One of the aims of the new museum building to be built in the Diesel Hall of the Northern Maintenance Depot is to solve the integration and professional placement of the repository, archive and library collections of The Hungarian Museum of Science, Technology and Transport in the long run, which are today stored in location with degraded infrastructure. The building part should be designed so that it provides proper storage conditions for the collections considering the storage and stock preservation requirements based on different international standards set up for different collections. Beyond the issue of storage, in the building part – as a result of the work organization – it is also necessary to provide space for performing the museum tasks related to the written, printed etc. collections. These are: research and reading services, digitizing workshop, document and book restoration workshop, and temporary warehouses accessible through appropriate routes.

Ensuring the placement and integration of the collections managed and handled by the institute, and establishing a system of conditions for processing and access serve not only the renewal of The Hungarian Museum of Science, Technology and Transport as a professional preservation place, but also the interest of users and potential donors, enabling the fulfilment of a new professional and community function.

The archives and the library comprise the fundamental collection of Hungarian technical culture, so these functions are intended to serve as intellectual workshops for researchers, while remaining open to the public as well. In an ideal case, the previous functions can operate independently, without being tied to opening hours of the museum.

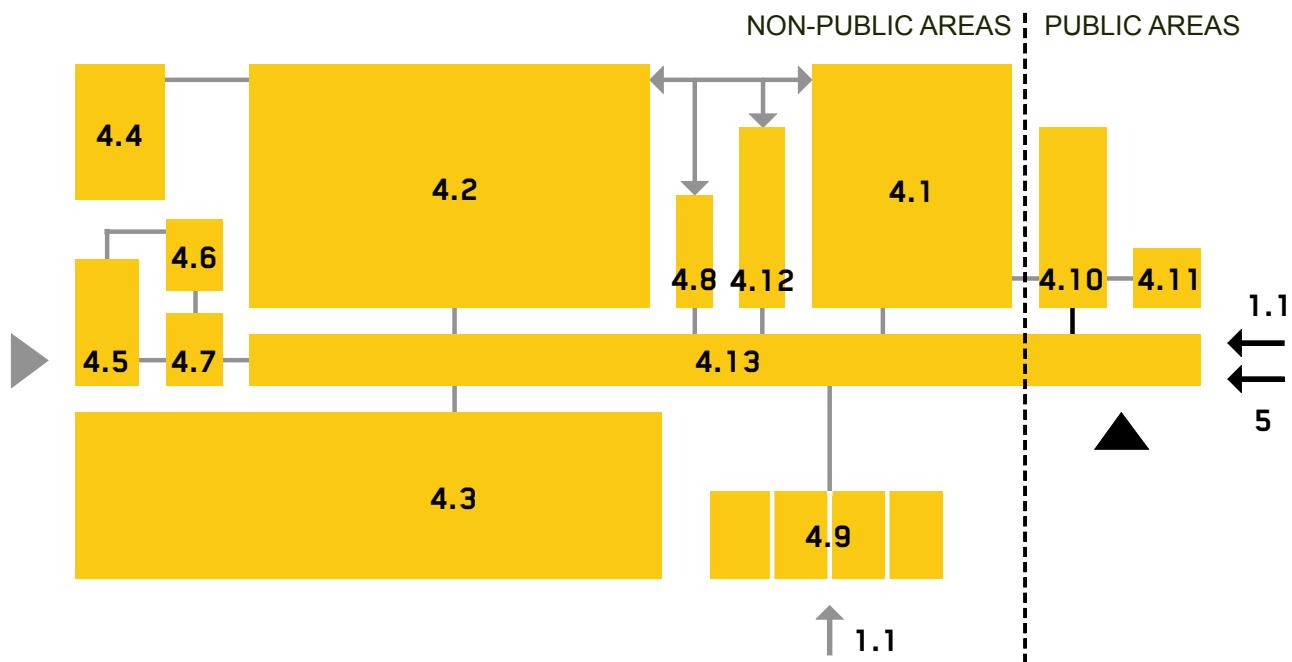
Load capacity of the document storage areas are usually 5,0 kN/m³ air, which is the specific value according to the applied storing technology.

Air requirements for storage and workshop areas: 16-18 +/- 1 °C temperature and 45-60 +/- 3% humidity. Some of the storage areas need to be dust-free and require extra protection.

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| function | net ground space | estimated gross level space |
|--|----------------------------|-----------------------------|
| 4.1 Archives, data and document storage | 600 m² | |
| 4.2 Blueprint storage | 1,200 m² | |
| 4.3 Library collection | 1,200 m² | |
| 4.4 Photograph storage | 150 m² | |
| 4.5 Reception area | 100 m² | |
| 4.6 Separation/disinfection/drying storage | 50 m² | |
| 4.7 Temporary sorting storage | 50 m² | |
| 4.8 Digitizing workshop | 50 m² | |
| 4.9 Offices | 250 m² | |
| 4.10 Reading room with reference library | 150 m² | |
| 4.11 Temporary keeping storage | 50 m² | |
| 4.12 Paper and book restoration workshop | 100 m² | |
| 4.13 Public areas, service areas | 600 m² | |
| Total: | 4 550 m² | 5,550 m² |

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5.2.8 Offices, other functions

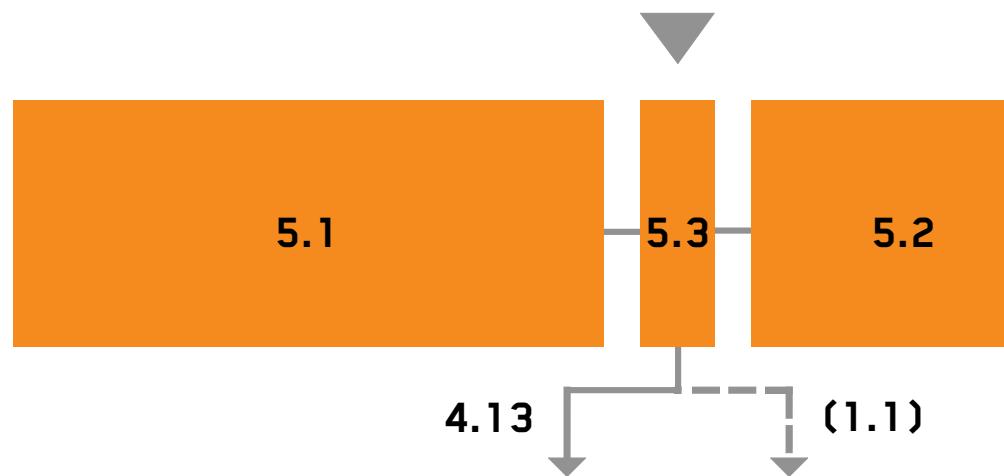
The Museum's offices provide workspace for the institute's administrative staff and researchers, and must comply with up-to-date regulations on work spaces. The ratio of large and individual cell offices is 70/30%. The directorate and all representative meeting rooms will be housed in this part of the complex.

With respect to this section, the following facilities are to be included:

- office for General Director with adjoining two-person secretarial office;
- office for Deputy General Director with adjoining two-person secretarial office;
- office for Director of Finance with connecting office housing ten employees;
- office for Operations and Development Director with one-person secretarial office;
- one 15 seat meeting room;
- two smaller meeting rooms;
- one finance office suitable for 10 employees;
- open-plan offices suitable for approximately 80 employees;
- kitchen and dining room;
- restrooms and other service facilities;
- storage rooms.

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| function | net ground space | estimated gross level space | estimated built-up area |
|---------------------------------|----------------------------|-----------------------------|---|
| 5.1 Offices (100 people) | 1,000 m² | | |
| 5.2 HVAC room | 500 m² | | |
| 5.3 Public areas, service areas | 120 m² | | |
| Total: | 1 620 m² | 1,950 m² | 1,300 m² (1,5 floors) |



5.2.9 Restauration Centre

The old Museum of Transport, founded in 1896 and opened in 1899, did not deal with restoring the collected (mainly) railway vehicles, as its purpose was to preserve and present these items as they were withdrawn from traffic.

After World War II, there was an increased need for restoration in the field of technical museology, and thus also for the Museum of Transport. This task appeared as part of the damage control following the war. The accelerated development of engineering museology, and the priority of artefact preservation required that a specific professional area addressed this issue.

Previously, the Museum's collection strategy did not require any restoration activity for large vehicles, because the means of transport, parts, and other traffic-related objects were received in a state ready for exhibition, or they were preserved and exhibited by the transport companies, e.g. MÁV and BKV themselves.

The museology of the 21st century (but in the past too) must fulfil a triple requirement:

- collecting
- processing
- presenting

The quality of the artefacts' presentation and its preservation for the future depend largely on the professionalism of the Museum's restoration activity. In addition to the need for highly trained professionals, the restoration centre must have modern technological and welfare facilities. The institution should also consider the question of replenishment, which means that opportunity for training should be provided.

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In order to implement the large-sized exhibition on the area of the Northern Maintenance Depot, the concept of which covers the period from the Hungarian Reform Era to the present or even to the future, together with the visitable storage, as well as to fully realize our collection expansion strategy, it is necessary to set up a Restoration Workshop and Competence Centre, which could achieve the above goals.

Here the artefacts, which can either be the means of transport, parts, or other historical objects, will go through a certain technological process and an artefact preservation intervention from their arrival at the museum to their display at the exhibition or the placement in the visitable storage. This process includes decontamination, cleaning, documenting, metal-, wood-, textile- and model restoration, and packaging. When completed, the Restoration Workshop and Competence Centre will be the only technical restoration base of its kind in the country. Besides providing high-quality professional work, external restoration needs must also be met. The design should be geared towards placing the ensemble of the restoration workshops in direct contact with both the exhibition and the storages.

The current collection and the planned future additions to it require continual reconditioning, restoration and maintenance. For this purpose, a group of properly equipped restoration workshops are to be established on the site, fulfilling various functions. Multiple floors can also be an option to some extent, taking the needs of moving the exhibits into consideration. The restoration centre is directly connected to exhibit storages.

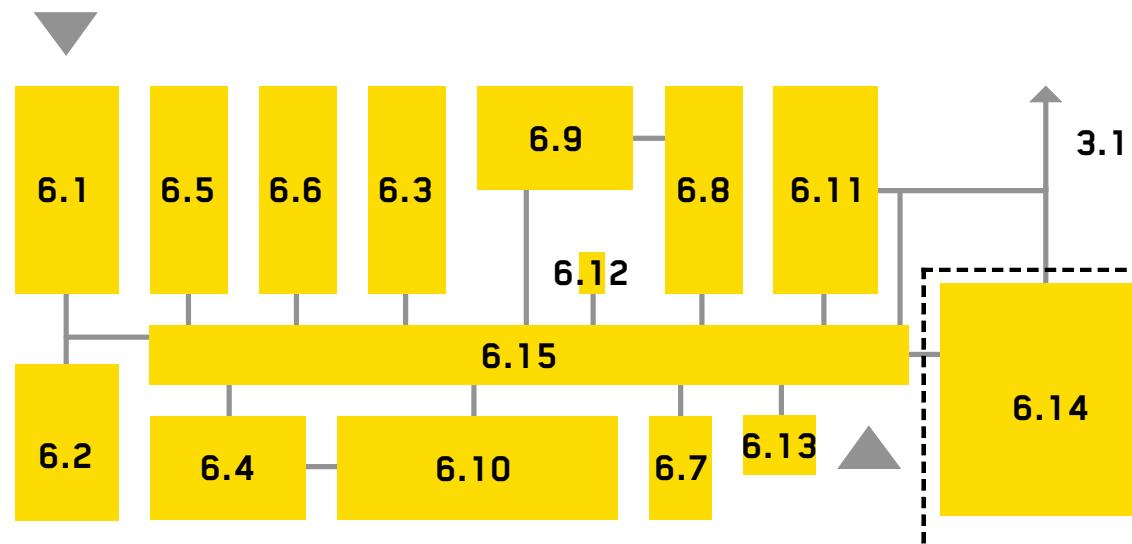
Defining the load capacities of the 6.14. the bus restoration workshop requires individual sizing.

Some of the areas in the workshops need to be dust-free. When planning the exhaust system, the handling of hazardous chemicals in a closed cycle needs to be taken into consideration.

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| function | net ground space | estimated gross level space |
|--|----------------------------|-----------------------------|
| 6.1 Receiving storage | 200 m² | |
| 6.2 Disinfection | 150 m² | |
| 6.3 Textile and leather restoration workshop | 150 m² | |
| 6.4 Metal restoration workshop | 150 m² | |
| 6.5 Wood restoration workshop | 150 m² | |
| 6.6 Model restoration workshop | 150 m² | |
| 6.7 Photo laboratory | 60 m² | |
| 6.8 Material storages | 150 m² | |
| 6.9 Washing rooms | 150 m² | |
| 6.10 Painting workshop | 270 m² | |
| 6.11 Post-treatment and packaging storage | 150 m² | |
| 6.12 Material testing lab | 10 m² | |
| 6.13 Classroom for training, for 10 people | 40 m² | |
| 6.14 Bus restoration workshop | 450 m² | |
| 6.15 Connecting ways, service areas | 420 m² | |
| Total: | 2 650 m² | 3,300 m² |

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5.2.10 Facilities management

Development of all areas designated to services purposes are a matter of individual design proposals.

5.2.11 Additional functions

In conjunction with this development, the Museum is planning to establish functions that support the extension of the institute's programmes in the innovation, commercial and service fields. The institute is expecting to receive some ideas from the bidders as well, that go beyond this call for a proposal. Aside from the fact that the described museum programme enjoys priority, the remaining resources could be used for functions to attract more visitors, strengthen awareness in society or bring in more revenue. One such function could be a simulator, a "locked room" shelter, rules of the road educational park, etc. Also, there are some resources that are closely linked to the operation of the museum but not fully utilised (restoration, show workshop), which could be used for new functions.

It is also possible to assign some functions to be located in flexible- or temporary-use buildings.

Some aspects to consider during the design process:

- accommodation – for school parties and conference guests;
- "incubation house" - to support engineering and transportation innovation;
- commercial, sales functions;
- cinema – even connected to the exhibition area.

Beyond the requirements of the official design tender, proposals for supplementary functions are welcome. Indication of such additional functions on the site plan is adequate, providing detailed plans is not a requisite at this stage.

5.2.12 Open spaces

The architectural quality and operation as well as the attractiveness of the museum complex is defined to a large extent by the proper design of the open spaces. Our aim is to turn the former brownfield site into a location accessible for visitors, an ensemble of spaces that is connected to the neighbouring public areas and Népliget park in a structured manner; with its leisure and recreation functions accessible and attractive for the wider city population, and for it to become a place with a unique identity.

The open-area elements of the infrastructure lend character to the industrial surroundings, their presence and their preservation is a task and also a challenge during the design process. These characteristic elements are the road and track system, open-air crane tracks, and some pieces of industrial equipment. Considering the necessary damage mitigation and rebuilding of the utility infrastructure, it is likely that in-site preservation is not always possible, however this can be a valuable feature of the open-air exhibition.

The design of the Museum's open spaces requires a creative landscaping approach to the industrial surroundings. It is a vital aspect to create an optimal system for the internal traffic of the institution, assigning walk ways and areas for car use, operational areas, protecting the precious flora, and providing the necessary amount of green area to meet regulations and integration of the open-air exhibition into the landscape.

Even after the museum exhibitions' opening hours, for as long as possible, the museum garden (partly or completely) should be approached easily, be accessible and be inviting to stay in, in harmony with the additional functions listed in chapter Additional functions, and the train station that would draw continuous traffic. However, maintenance and monitoring also need some consideration during the design process.

The foreground that leads to the building complex also serves as the final stop of the old-timer trams arriving from the city centre and could have the function of a venue for special events, and for those coming from the hub at Hungária körút, there is an opportunity to display an architectural sign that identifies the Museum. Building the new train station poses a complex landscaping task, as the area at the intersection of the north-south and east-west pedestrian traffic – behind the Törekvés Cultural Centre - also fulfils the function of an open public square.

5.3 RAILWAY STOP

Based on the Government's decision, a railway stop will be constructed on the railway line along the development area of the Northern Maintenance Depot to establish a stop for suburban railway services running on railway line nos. 80 and 120.

The new railway stop will have three main functions:

- improves the accessibility of the new public institutions (Opera Workshop, Museum of Transport) to be established in the area of the Northern Maintenance Depot;
- offers the option to change transport modes for the means of urban community transport, especially in regard to tram line no. 1 and bus line no. 9;
- encourages functional change and development for the broader area, such as the former Józsefvárosi Railway Station.

Based on the preliminary studies, considerable passenger traffic, a daily number of 8,000 passengers are expected, mostly consisting of transferring passengers.

This tender also includes the conceptual, architectural and landscape design of the passenger service facilities of the railway stop (platform, platform roof), traffic areas, service functions (ticket offices, waiting areas, restrooms) and its foreground, in the form of an architectural design competition. Following the announcement of the tender results, the railway facilities will be further designed by National Infrastructure Development Ltd (NIF), to which the Contracting Authority will grant the right to use the relevant parts of the competitive designs that have been awarded and purchased.



The museum and the railway station constitute a single unit of the urban structure, therefore their realization is likely to conclude within the same period. Apart from fulfilling the aforementioned requirements, the railway station is conceptually interlinked with the theme of the museum, framing and presenting the rail transport of our days. In the submitted entries, abstract architectural representation of this connection is desired.

The available preliminary plans are made accessible as editable files in Appendix 6.13. to this tender documentation. The routes and technical solutions of the railway tracks, platforms and engineering structures (bridges) are to be taken as the basis of the elaboration for the competitive designs with no solutions that are different in concept to be proposed.

5.3.1. Platforms and platform roofs

In terms of passenger traffic, passenger platforms will have different functional parts. They will be edged by hazard zones in between the so-called drifting limits; within them, the safe zone will be located to accommodate transport and waiting functions. As the platforms are fairly long, it is reasonable to divide the waiting zone into two sections: the comfort zone focusing on access and the typical stopping places of railway assemblies, as well as the safe zone for other, less frequented waiting and transport areas.

The following aspects will be taken into consideration for the design of the platforms:

- The southern ("A") platform is a centrally located platform, whereas the northern ("B") platform is an edging platform; their useful length is 200 m; the elevation of the walking level is 55 cm above the top level of the rails.
- At the railway stop, railway assemblies with a typical length of 144–160 cm will arrive, and the place of stopping will be administratively controllable depending on the constructed environment.
- The protection of the platforms against the weather should be extended to the vertical communication routes (staircases, elevators) and the comfort zones. For this reason, the length of the platform roofs will be at least 100–120 m.
- The following equipment should be installed in the comfort zone:
 - *platform furniture (bench, waist support, bag holder, waste collection bins);*
 - *wind protection elements (e.g. glass wind shield or integrated wall);*
 - *passenger information cabinet;*
 - *dynamic passenger information devices.*

- Passenger information boards and pictograms need to be installed all along the platform.
- Efforts should be made to decrease the number of free-standing elements and equipment, and to integrate the functions in the zone of other equipment.
- With regard to platform roofs and equipment, a transparent, clear, purist and modern architectural approach needs to be applied with consideration given to the significant traffic loads and ease of operability.
- Poles for overhead lines or signalling posts cannot be installed in the platform roof or the traffic zone of the platform.

5.3.2. Railway technology

The site subject to this design task will not accommodate traffic services, and therefore the presence of staff is not necessary.

For passenger information and telecommunication devices, a room of 12 sq m floor space with ventilation needs to be provided, preferably in the immediate vicinity of the railway tracks (e.g. in the undercrossing space).

5.3.3. Traffic routes, undercrossing and forebay

At the crossing of the railway tracks, a new pedestrian undercrossing should be planned to allow access to the platforms of the railway stop, and ensure transfer between the MÁV housing estate, the Museum of Transport and Népliget. The following criteria will be taken into consideration for the design of the undercrossing:

- Undercrossings should be usable without time limits, while access routes to platforms need to be lockable beyond the operating hours of the railway.
- Similarly to the other communication routes, the undercrossing needs to accord with the dimensions necessary for the anticipated passenger traffic for at least the medium-term.

- For all the platforms of the stop, ergonomic, properly dimensioned access routes featuring wheelchair access should be constructed from the direction of the inner areas of the Northern Maintenance Depot, the onsite access road, the Kónyves Kálmán körút– Kőbányai út hub and the MÁV housing estate. With respect to the level differences, it is reasonable to use ramps designed for wheelchair access at the exits of the undercrossing.
- Further access routes to the platforms can also be designed, but they are not absolutely necessary.
- Efforts need to be made to have transparent, self-explanatory and clear spaces.
- Passenger information boards and pictograms need to be installed in the undercrossing space, too.
- In the undercrossing, a separate engineering room needs to be designed with the necessary water supply, collecting shaft and pump for water discharge, as well as distribution, cleaning device storage and other operating functions.
- The separation of passenger and bicycle traffic needs to be clearly indicated using architectural and traffic engineering solutions.

The function of the railway stop forebays at the exits of the undercrossing will be restricted to temporary stopping and waiting. Their designs and public space qualification should be identical to those of the other parts of the planning area. They also need to be able to accommodate the bicycle storage facilities described in chapter 5.4.4.

5.3.4. Passenger services

In view of the considerable traffic at the railway stop, the following minimum functions need to be put in place in the 50-metre range of the platform access routes at the farthest. At the designer's discretion, they can be located on the level of the undercrossing, in the building of Törekvés Cultural Centre or even in a separate building, but in all cases as part of the uniform architectural concept.

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Passenger hall, passenger waiting room

- The passenger waiting room needs to be located at the focal point of passenger flow, with good visual and special connections.
- Functionally, the passenger waiting room will be connected to the ticket offices and toilets, as well as other service functions (e.g. shops).
- The passenger hall will be a spacious, transparent facility of high-standard materials to be used and regulated air space with furnishing suitable for short-term waiting. Estimated floor space: 70–100 m².
- Appropriate wall surfaces need to be provided for the installation of passenger information devices.

Ticket offices

- For the accommodation of ticket sales and information services, a distinct group of premises forming a separate safety zone is needed. Main premises: foreground and lock gate, communal space and kitchenette, ticket booth, toilets, archives. These premises should be connected to the centrally located kitchenette. The archives can be consolidated with the archives. Floor space of the background premises: 30–40 m².
- Two ticket booths are necessary with service windows opening to the passenger hall for anticipated needs.
- In addition, four ticket vending machines need to be installed within the area of the railway stop at locations that are preferable in respect to passenger flow.

Other functions

- It seems to be reasonable to complete service functions to be put in place by the railway company for the provision of high-standard services to passengers with small shops offering daily consumer goods and services that fit the intermodal hub. Depending on the specific architectural concept, they can be installed anywhere near the line of passenger flow, with the exception of the platforms.
- Restrooms need to be established near the passenger waiting hall, but not at exposed locations.
- Provisions should also be made for the premises required for the operation of the facility (e.g. waste storage, warehouse, distributors, etc.).
- Care should also be taken to properly satisfy the parking and loading demands of the ticket offices and shops.

5.4 TRANSPORT

The Northern Maintenance Depot is in a relatively long distance away from the conventional downtown tourist destinations, but via road and rail-mounted networks it can be well integrated into tourism. To this end, accessibility calls for thoroughly considered developments with planning approaches that we want to support with the following.

The annual number of visitors to the Museum is estimated to be 350,000. Typically, peak days are anticipated to fall on weekends, and therefore the estimated number of visitors on highly frequented days will be between 3–4,000 persons/day, with equal part of them using individual and public transport to get to the site. As to the number of visitors of Törekvés Cultural Centre, no similar estimates are available, but it is not anticipated that the facility will attract significant crowds, and this should be taken into consideration in the tender.

5.4.1. Public transport

The tram and bus network serving the planning site can be regarded as being well-established, with no material changes to be implemented. Tram tracks and stops are also included in chapter 6.13. as editable files.

The passenger traffic of the new railway stop comes mainly from Könyves Kálmán körút. It will emerge in the hub of Kőbányai út, which will necessitate more frequent services, but is not expected to influence the infrastructure. Therefore, it is requested that only the following elements be elaborated in the competitive designs:

- The tramway line in Kőbányai út and the stop in Könyves Kálmán körút should be modernized. The design of the stop has to be aligned with the main directions of passenger flow and the formation of areas for public use, especially in regard to the requirements of wheelchair access. The useful length of the platforms with side platforms is 35–35 m with the width of the platforms being a minimum of 2.5 m. For each platform, it is necessary to construct one half sheltered and half open, glazed waiting pavilion for passengers.
- Alongside the development of the tram stop, the bus stop that can be found in the hub should also be modernized. The useful length is 21 m; here again, the construction of a waiting pavilion for passengers is also necessary.

The design requirements of the new railway stop as part of the tender are detailed in Chapter 5.3.

5.4.2. Pedestrian traffic

Based on the Contracting Entity's intentions, the building complex of the Museum to be established as a result of the design competition is not only expected to be a public institution presenting cultural heritage, but should also serve as a focal point that encourages community activities in the currently forming cultural district and the community use of public spaces. In this respect, in addition to the public and private spaces of the Museum, a key role is given to the formerly missing, human-scale and accessible elements of the city texture, and spaces for pedestrian traffic. In this respect, the scope of the project is not restricted to the two

designated properties (lot no. 38920/9 and 38917/2): minor interventions for the creation of the required functionalities and quality can be extended to the closer environment.

In the design of surfaces for pedestrian traffic, it is recommended that the following aspects be taken into consideration:

- Using public transport, visitors to the Museum will mostly come from the direction of the tram and bus stops in Könyves Kálmán körút, with a smaller number of railway passengers expected.
- The planned new railway stop is estimated to be used by 8,000 people on a daily basis. Approximately 85–90% of the passengers will want to use the public transport services that are available at the junction of Könyves Kálmán körút and Kőbányai út, and therefore a direct connection should be put in place in this direction. It can potentially be provided via a protected, broadly designed route on the eastern side of Törekvés Cultural Centre. Comfortable access to the stop can be ensured with a pedestrian undercrossing that is open towards the Museum and MÁV housing estate.
- The northern direction of access to the railway stop is of lesser importance, yet nevertheless forms a part of the design task. The forebay of the stop can be established in the section of the property at lot no. 38916/8 now built up with annexes.
- Currently, there is no pedestrian walkway on the northern side of Kőbányai út, but it would be necessary for both the Museum and the Opera Workshop in order to ensure access in the development area all along the east-to-west side. Pedestrian traffic should be located to the zone between the Head Office Building of the Diesel Hall and the tram tracks, partly under the archway of the building, with a connection to the Könyves Kálmán körút hub.
- The above-described north-to-south and east-to-west pedestrian axes should be accessible and passable without time limits.

- In respect to the considerable developments in the area of the former Northern Maintenance Depot and Népliget, there is good reason to strengthen pedestrian links between the two areas. The further construction of the north-to-south pedestrian link coming from the new undercrossing towards Népliget is of major significance, which can be implemented with the use of the property at lot no. 38440/61.

5.4.3. Road traffic

The road network elements to be implemented within the framework of the existing and other investments in the surroundings of the planning area are detailed in Chapter 4.2.3, and will also be issued in the form of editable files in Appendix 6.13. This forms the technical contents that it is recommended be taken as the basis of the elaboration of the competitive designs, or applicants can make different conceptional proposals only with proper justification.

The following aspects will be taken into consideration for the road services:

- The listed road sections and junctions are to be taken as they are currently in place for planning: Applicants can assume that they will be available until the implementation of the Museum and the railway stop.
- New connections or gate exits cannot be opened in the direction of Kőbányai út and the Könyves Kálmán körút; moreover, the current exits should also be eliminated. Links to the building plot at lot no. 38920/9 can be provided from the rear access road and the private road at lot no. 38920/8, i.e. the one separating the Opera Workshop and the Museum.

5.4.4. Bicycle traffic

No major development of the existing bicycle routes forms a part of this design competition in general. However, the following aspects need to be considered in relation to the implementation of the newly formed cultural and recreational building complex, and more specifically safe and attractive bicycle access to the Museum and bicycle storage facilities:

- As an innovative institution of environmentally conscious features, the Museum aspires to see the largest possible proportion of its visitors coming on bicycles, and therefore a sheltered bicycle storage facility for at least 200 bicycles will be put in place near the visitor entrance(s). Own storage facilities for employees, accounting for 30% of the bicycle places, can be installed jointly with or separately from the above storage facilities.
- It is anticipated that conflicts between pedestrian and bicycle traffic will be resolved with reliance on clean-cut spatial architectural design instead of administrative restrictions.
- The free spaces and outdoor event areas of the Museum can be partly or fully accessible (also) on bicycles depending on the exhibition and landscape architectural concepts of the applicants.
- A large proportion of the bicycle riders visiting the area will not be experienced riders, but children and hoppy riders, which needs to be taken into consideration during the elaboration of the proposed technical solutions.
- The renewed urban park of Népliget will offer opportunities for the extension of the scope of the Museum programmes and the refreshment of visitors, and therefore consideration should be given to linking the two sites with the use of biker-friendly technical solutions.

It is also anticipated that the new railway stop will attract significant bicycle traffic, and for this reason the designs should take the following aspects into account:

- Near access routes to the platforms – expediently at the two entrances of the pedestrian undercrossing –, sheltered bicycle storage facilities for at least 150 bicycles each should be put in place. The arrangements of these storage places need to allow future expansion.
- The inner dimensions of the elevators towards the platforms are to allow bicycle transport.
- It is reasonable to design the undercrossing in a form that gives way to comfortable access to the residential area to the north of the railway (MÁV housing estate), Kőbányai út and Népliget without disturbing pedestrian traffic.

5.4.5. Parking, vehicle storage

In respect to the functions located in the property at lot no. 38920/9 – i.e. the building complex of the Museum of Transport and Törekvés Cultural Centre –, it is requested that the following aspects be taken into account:

The parking lots of the two institutions can be designed either jointly, or separately, with the aggregate parking demand being 220 passenger cars. Furthermore, parking bays for people with disabilities and electric car charging points must be installed in sufficient numbers to satisfy the relevant regulatory requirements. In view of the composition of the Museum visitors, at least 20% of the parking bays need to be planned as family (extra wide) parking places.

Parking bays for visitors can be fully or partly located in public spaces, even along the new access road. Functionally, the own parking lots of the institutions could feasibly be located near the respective buildings.

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Since - in light of the current trends - service sharing may become more preferable to private car use in the medium term, and similarly the large-scale proliferation of autonomous vehicles can be expected, parking lots should feature such technically flexible, cost-efficient solutions that allow utilization for other purposes, and can be adapted to changing usage demands.

It is anticipated that a large proportion of visitors from outside Budapest and from schools will come to the Museum in groups, on organized coach tours, and therefore along each of the surrounding road sections at least two coach on- and off-boarding points need to be established. The designers' proposals in relation to the parking of coaches in the intermittent period are requested, which could also take place at a reasonably accessible external site.

Preferably, the route in between the parking lots and the entrances for the visitors of the institutions should not cross public roads. However, if necessary, provisions should be made for safe crossing with the use of adequate solutions of traffic engineering.

In relation to the railway stop, the following aspects need to be considered:

In line with the programme detailed in Chapter 5.3, operating parking and loading places (for own use) have to be ensured only for the ticket offices.

The new railway stop will function as a transfer point of significant traffic, and a hub to change between public and private transport modes. Although in the urban environment the establishment of typically P+R parking lots does not seem to be justified, in respect to commutation in the given, opposing directions and long-distance travellers the construction of parking places is still recommended.

Since the Museum, the railway stop and the nearby Opera Workshop have significantly different time requirements for parking, based on this time deviation the same parking lots can serve various purposes.

5.4.6. Transportation of artefacts, logistics

The transportation activities of the former railway servicing site used to be partly operated over the extensive internal track network. Parts of this can be sustained on the current routes for the purposes of the Museum: it concerns the group of tracks shown in Appendix 6.13., the end of which is connected to the a dolly of the Diesel Hall. According to the preliminary plans, the industrial side track will leave the area of the Museum via the existing track gate, and cross a new, common road and railway bridge before running into the tracks heading towards Keleti pályaudvar (Eastern Railway Station).

The section of the newly built industrial side track outside of the building plot at lot no. 38920/9 should remain unchanged by the design. Applicants can assume that it will be available until the implementation of the Museum and the railway stop.

The main role of this link to regular railway operations is to move railway vehicles belonging to the collection and other large-sized objects, and therefore it can (and must) be taken into consideration during the elaboration of routes for the transportation of artefacts.

In other respects, the Museum will be served from public roads. The hubs that are to be constructed in Kőbányai út will allow the passage of 5-axle vehicle assemblies, and for them freight entrance and onsite loading options should be provided.

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5.4.7. Heritage transport services

The appeal of the Museum of Transport for tourists is largely enhanced by operable vehicles that can be deployed to normal traffic. They are suitable for emphasizing the features of the Museum, and make the museum experience more complex for visitors, and therefore we are intent on regularly running heritage tram and train services during the opening hours of the Museum.

Heritage trams will access the site via the Kőbányai út tracks, and as part of the forebay area of the Museum a terminal station with a tail track should be constructed. The 45-meter-long platform of the terminal station is not to be converted for wheelchair acc 6.1 Design base map.

Heritagetrains will run on the industrial side tracks mentioned in Chapter 5.4.6 and the existing track network to be preserved from the direction of Keleti Pályaudvar and a 120-metre-long passenger platform has to be constructed within the area of the Museum for their reception.

[6 APPENDICES]

- 6.1 Design base map
- 6.2 Land survey
- 6.3 Regulatory documents (in Hungarian)
- 6.4 Aerial photos
- 6.5 On-site photo documentation
- 6.6 Location photos for renderings (will be issued in the second phase)
- 6.7 Drone video (will be issued in the second phase)
- 6.8 Archive plans
- 6.9 Archive photos
- 6.10 Point clouds
- 6.11 Survey plans and BIM model
- 6.12 Iconic vehicles
- 6.13 Transport study
- 6.14 Transport drafts (will be issued in the second phase)

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<<< [1] Government Decree No. 310/2015

Section 17(3): an economic operator that or a private individual who has been ruled in a final and binding court judgment adopted in the last three years to have committed a violation of any regulation in its/his/her professional capacity may not participate in a design contest as a Applicant.

Section 18(3): the members of the jury may not participate as designers, experts or consultants in the processing, adaptation or redesign of entries that they evaluate, and they may not submit a design in accordance with an identical design program for the same location as the object of the design contest in which they are engaged by the contracting authority to evaluate designs.

18. § (4): In addition to what is stated in Section 25 (3) of Hungary's Public Procurement Act, a person may not act as a Applicant if he or she

- a) is a close relative of a member of the jury within the meaning of Section 8:1.2 of Hungary's Act V if 2013 on the Civil Code,
- b) has an employment or other work-related contract with, or has ownership interest in, the same economic operator as a member of the jury, or
- c) submitted a joint design proposal with a member of the jury within the last year.

Section 18(5): In addition to what is stated in Section 25 (3) of Hungary's Public Procurement Act, an economic operator may not act as a Applicant if

- a) any of its executive officers, any member of its Supervisory Board or any shareholder that has ownership interest in it, or any close relative of the above, is a member of the jury, or
- b) it has an employment or other work-related contract with a member of the jury.

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